PETROLEUM WEEK

SEPTEMBER 27, 1957

■ A McGRAW-HILL PUBLICATION

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60-Second Summary / WHAT'S HAPPENING IN OIL

September 27, 1957

Texas appears to have won the Texas-Oklahoma deep well "race." The Lone Star entry, Pan American No. 1-CS University, in Pecos County, hit 20,647 ft. this week, and is still going. But Oklahoma's record holder may stop at 20,407 feet. . . . p. 13

•

An economic squeeze is adding fresh impetus to a drive for deeper, quicker, imports cuts. This squeeze is being felt by communities in producing areas, prompting some chambers of commerce and other groups to join independent producers in pressing for prompt action. Clearly, the government's plan faces more trouble . . . pp. 11, 12

•

The imports program may get tangled up in antitrust charges. Some Washington lawyers say participants may be subject to prosecution later. . . . p. 18

•

Motor oil soon will be sold in aluminum cans for the first time in volume. Esso Standard is buying 35-million quart cans from Reynolds Metals Co., enough to supply all Esso stations in the northeast in 1958. . . . p. 57

•

Some new pipeline coatings look good. That's the report this week from two companies that have been testing the new materials. . . . p. 51

•

The Iranian-Italian oil contract isn't apt to set a pattern for others. Howard Page, a Jersey Standard director, terms the 75-25 label misleading. He says Iran's share will be well below 75%, and that Iran would likely fare better under a standard 50-50 profit-sharing deal, with bonuses. . . . p. 55

•

A "super" offshore drilling platform, capable of drilling in 600 ft. of water, may not be too far off. Plans for such a mobile platform, which could be converted to a permanent platform, were described this week at a conference in Tulsa. . . . p. 21

•

A Tokyo firm may be hauling liquefied natural gas to Japan within a few years. It says it has solved the major problems of shipping liquefied methane. . . . p. 51

•

Oil companies now have 84 large and medium-scale computers in the U.S. Another 38 are on order. A Petroleum Week survey of oil's computer activity shows a fairly even split between scientific and accounting applications. . . . p. 44

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Petroleum fuels will top the exotic "high energy" materials as a power for missiles, according to two Shell Oil experts. . . . p. 39

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Up to the Minute / SIGNIFICANT LATE NEWS

September 27, 1957

U.S. well completions this year will be at least 4,000 below the 1956 record of 58,271, Robert L. Wood, president of the Independent Petroleum Assn. of America, predicted this week. But to be even that close to last year's completions, activity in the fourth quarter will have to match last year's final quarter completions of nearly 15,000 wells.

Drilling perked up in the third quarter, however. Preliminary figures indicate that completions for the three months may run only about 1,000 under last year. In the first six months, completions were 3,100 fewer than in 1956. For the year to date, completions are 9% below 1956.

•

Pennsylvania has opened the first bids on Lake Erie acreage inside the U.S. There were two bidders: New York State Natural Gas Corp. and Kewanee Oil Co. The gas firm's bid of $3.79 an acre annually for 19,130 acres and $1.11 an acre for 16,500 acres was tops. The state may offer smaller tracts later.

•

New Mexico is calling in all Gulf Credit cards used for purchases of oil products for state-owned vehicles. The wrist-slapping action stems from Gulf's 20% reduction of its crude oil purchases there. Said the govnor: "We will do business only with those we consider neighborly!"

•

An eight-company group headed by Phillips Petroleum is the latest to start drilling new Lake Maracaibo acreage. Kermac Drilling Co. spudded the group's LPG-1-1 this week on Block 17, farther south and west than any lake acreage yet tested.

•

The "Little Inch" conversion case may go back to the Federal Power Commission again. The reason is legal: FPC skipped an intermediate step in giving Texas Eastern Transmission permission to switch the line from natural gas to oil products transmission. Attorneys for barge operators argued this week before a U.S. Circuit Court of Appeals that this was illegal procedure by FPC.

•

Efforts will be made to block the government's plan to lease out its oil shale plant at Rifle, Colo. Sen. John Carroll (D., Colo.) says such a lease would go to some major oil company, and that this could add to "highly dangerous concentration of economic power." Carroll was elected last year on an anti-oil platform.

•

A big-time European combine may be shaping up for worldwide oil operations. Moving force seems to be the banking house of Lazard Freres, in Paris, Lazard recently set up Eurafrep, an exploration financing firm, which has already acquired Sahara exploration interests and is reportedly negotiating for rights elsewhere abroad. Lazard is also a big shareholder in Sofina, which recently bought control of Brown Drilling Co.

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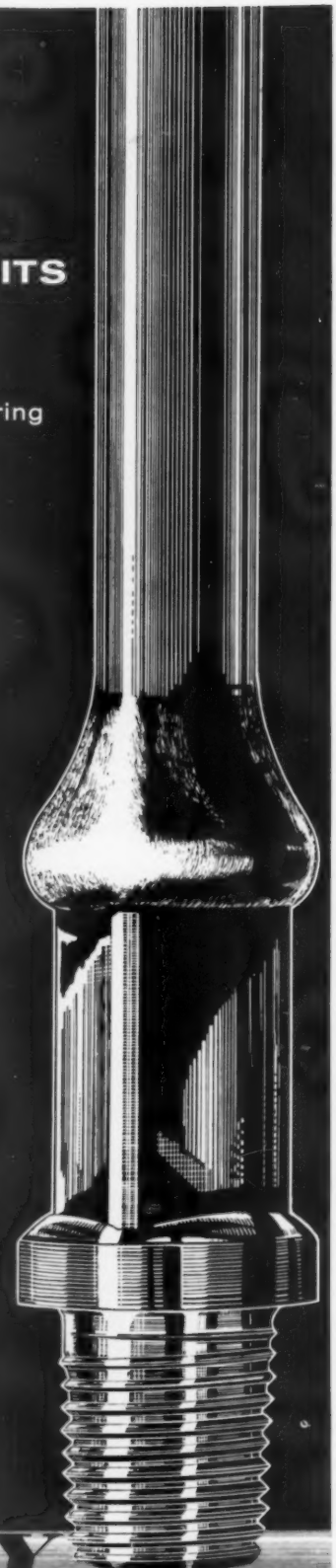

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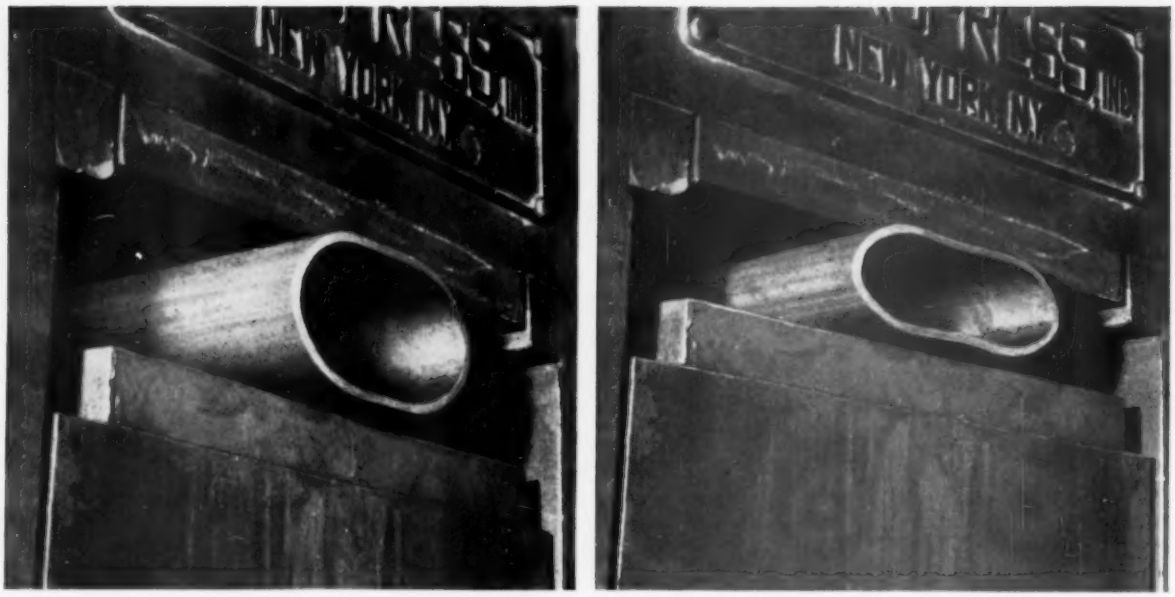

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Foster Wheeler has also been awarded a contract for a major modernization program of the gasoline-fuel oil section of this refinery — including expansion of existing combination unit, installation of new Powerforming and kerosene treating units and substantial offsite facilities.

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New Attack on Imports Shapes Up

- **Despite optimism in Washington, many producing areas are pessimistic over the imports plan.**
- **Producers want deeper cuts. They are getting support from areas feeling the economic pinch.**

Independent producers, under growing economic pressure, are not convinced that the voluntary import-control plan will work. They want quicker, deeper cuts in the volume of foreign oil coming to the U.S.

Most of the independents were only lukewarm about the government's plan when it was announced. But some had expressed cautious optimism that it might bring an end to the continued reductions of allowables.

But after three months of 13-day production schedules in Texas, followed by a new cutback to 12 days for October, independents are clamoring for definite action to cut imports.

The October initial allowable in Texas was set at 2,964,062 b/d, off 228,075 b/d from the mid-September level.

(In New Mexico, the Conservation Commission continued the state's normal unit allowable of 37 b/d for October. The new statewide allowable will be 310,096 b/d, up 5,971 b/d from September. And in Louisiana, the October allowable will be unchanged from September, except for a 17,260 b/d allowance for new production. The October initial allowable will be 777,428 b/d.)

The Independent Petroleum Assn. of America last week said that, while it was "encouraged" by the indicated reduction in scheduled imports, it was concerned by the increase in actual imports since the start of the voluntary program.

Jerome J. O'Brien, president of Texas Independent Producers & Royalty Owners Assn., told a group of Washington lawyers that he doubted if the voluntary plan would work.

The independents are finding support in hard-pressed communities in producing areas, where a new grass-roots campaign is starting to demand cutbacks in imports.

The campaign is just getting under way in Texas, but independent producers believe it will gain momentum as their own forced cutbacks in spending begin to affect entire communities.

The first of the community-level meetings was held last week in Breckenridge, Tex., sponsored by the Breckenridge Chamber of Commerce. It included some 112 business leaders and public officials from 22 communities in North and West Central Texas. They met "to evaluate the economic slump that these areas are experiencing."

One action taken by the group was to send a wire to President Eisenhower: "Unless the voluntary control plan . . . brings about immediate reduction in the flow of foreign oil into this country, and unless pipeline companies are persuaded to extend and purchase oil along their lines, the economic life of every man, woman, and child in these areas will be jeopardized."

Communities in North and West Central Texas are the hardest hit areas so far, due to a considerable volume of closed-in production.

Some of this closed-in production is the result of wells that are not connected to pipelines. The big majority of the approximately 8,000 unconnected wells in Texas are in those areas.

But even more important have been (1) the cutbacks in allowables, and (2) the spread of purchaser proration. Both the lower allowables and purchaser proration, independents say, are directly attributable to excessive imports.

In their telegram to the President, the leaders at the Breckenridge meeting stated that a survey "confirms a severe drop in employment directly attributed to the depressed condition of the oil industry."

Among the producers, the economic pinch is tightest on the small independents who can't afford to drill new wells to offset cutbacks in allowables.

Some of them already are threatened with foreclosure on their bank loans. They have wells capable of producing sufficient oil to provide a payout, but the current 13-day, and next month's 12-day, producing schedules won't permit sufficient runs from leases to maintain monthly payments.

And barring sharp cutbacks in imports, most producers don't see any hope for significant increases in allowables.

The most optimistic producers now look for no more than a 13-day producing schedule in Texas in November and December.

And for most of 1958, the present expectation is for a continuation of the 13-day producing schedules, that first hit Texas last July.

One major buyer predicts, "A 13-day schedule might even look good in Texas next year."

One reason for his prediction:

The growth in total demand next year is now expected to be small, possibly no greater than 1% or 2%.

One 1958 estimate, made last week by B. L. Ray, vice-president of Esso Standard Oil Co., placed total 1958 demand (including exports) at only 0.4% over 1957. Domestic demand, Ray predicted, will be up 2.1%.

Some other private forecasts are only slightly more optimistic. One expects that domestic demand may run as much as 3.7% ahead of 1957, and that total demand may be up 1.2%.

The slower growth in consumption, the anticipated imports, and the present high inventories, mean that demand for domestic crude in 1958 may be no higher—and possibly lower—than in 1957.

One oil economist predicts that demand for domestic crude next year will average 7,180,000 b/d, or about 36,000 b/d below the estimate for 1957.

This forecast of domestic crude demand is based on the assumption that crude imports will be within the overall 1,031,000 b/d limit recommended in the voluntary program.

And if next year's demand for domestic crude is no higher than this year's, allowables will have to continue tight. For Texas producers, the producing day schedule in 1958 may even run considerably below this year.

In the first half of the year, Texas had a 96-day producing schedule, one

less than in the first six months of 1956. But with one less producing day Texas production in the first half was up 4%.

Assuming 13-day schedules for November and December, Texas will have 173 producing days in 1957, compared with 190 days in 1956 and 194 each in 1955 and 1954.

And with some buyers now indicating that a 13-day pattern may be the most that can be expected through the first seven or eight months of 1958, the total producing days next year may run well below this year's schedule.

Texas producers generally appear now to favor holding allowables in line with purchaser demand rather than trying to force unwanted oil on the market, with the possibility of encouraging purchaser proration. Bruce Street, president of the West Central Texas Oil & Gas Assn., speaking for his and other associations, told the Texas Railroad Commission last week that independent producers have learned the "painful reality that excessive imports cannot be discouraged by allowing production in excess of market demand."

Washington: 'Imports Plan Will Work'

Even though there are rumblings of discontent from some producers and refiners, top officials in Washington still are optimistic that the voluntary program will work.

They say they see no cause for alarm in statements made during the recent imports hearings, or in the companies' own estimates that imports during the last six months of 1957 will exceed the recommended ceiling.

Capt. M. V. Carson, imports administrator, points out that most importers show signs of complying—or coming close to compliance—with the government program.

The chief exceptions are the companies that have requested the largest adjustments in their "quotas"—Tidewater, Sinclair, and Indiana Standard.

Both Tidewater and Sinclair have implied they may not be able to participate in the voluntary program if their requests for relief are denied.

At the same time, Gulf Oil Corp. warns that it will have to reconsider its promise to cooperate if "substantial" adjustments are allowed the objecting companies.

The Administration is going on the assumption now that the objecting importers will fall in line, whether or not their pleas for special treatment are granted.

For one thing, the importers are keenly aware that failure of a "voluntary" program would almost inevitably bring on formal, mandatory controls.

Also, Carson is confident that established importers, such as Gulf, will stay in the program, now that he has made it clear that no relief granted to objecting importers will be subtracted from any other company's allocation.

Interior Secretary Fred A. Seaton is also, at this stage, using the velvet glove approach. But the mailed fist is visible.

"I would expect that, in the long run, all the companies will get their affairs in such order that they can meet the quota, or come very close," he says.

". . . If [the program] were to fail, there are only three alternatives," Seaton adds.

"The first would be to do nothing. The second would be a presidential order for mandatory controls. The third would be congressional action.

"Of these three, I would say the first course is most unlikely," he says, his voice showing some dry humor.

Since the Reciprocal Trade Agreements Act comes up for renewal next year, congressional action is almost a certainty if the problem is still unsolved.

It appears clear that the government's optimism is based on the assumption that the program will be considered successful if, by mid-1958, the imports rate is "reasonably" close to the rate called for by the Cabinet committee.

It is already obvious that crude imports for the next several months will exceed the 756,000 b/d ceiling the government is seeking for imports east of the Rockies. The excess during the last half of this year may be as much as 100,000 b/d.

Government officials are quick to point out, however, that such a figure includes the adjustments being sought by some importers. With those adjustments eliminated—or pared down sharply—the industry would soon approach the program goal.

That is, the requests for upward adjustments total less than 80,000 b/d. If, say, the government approves extra allocations amounting to half that figure, imports would be some 170,000 b/d under the 971,00 b/d level which had been programmed at the time the President termed imports had become a threat to national security.

A 170,000 b/d cut below original imports plans still would leave imports about 45,000 b/d over the program goal of 756,000 b/d. But that might be close enough to satisfy the government.

Carson, for example, has said that he does not consider the Cabinet committee's recommendation as inflexible.

Some observers fear, however, that if the program is permitted to become flexible, it will soon be stretched out of shape.

Even with its optimism, the government is keenly aware that a chain reaction could wreck the program quickly.

That is, if a few companies refuse to comply—or if they are given extra "quotas," other importers may balk at making the cuts that they had planned to make.

To avoid touching off such a reaction, the government is expected to take as "tough" an attitude toward the proposed adjustments as it can without, in turn, pushing the objecting importers into open defiance of the program.

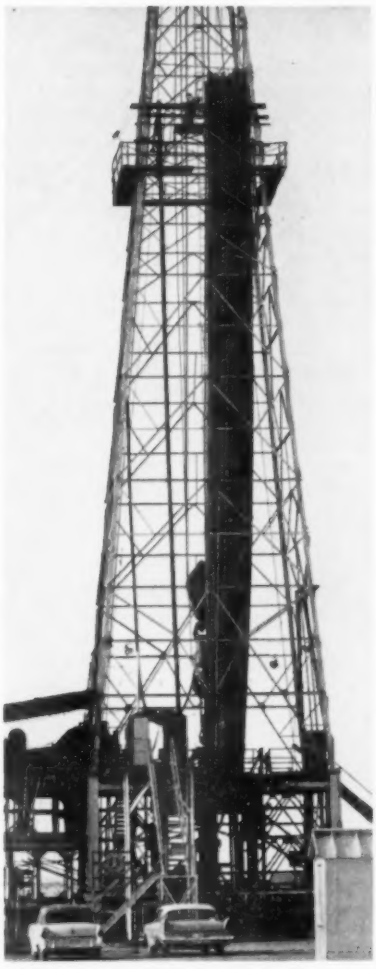
Because of this touchy situation, the Administration's decisions on the requests for increased "quotas" are considered important. The Cabinet group, which will meet frequently until a decision is made, is likely to think in terms of the effect each proposed adjustment would have on the entire voluntary program.

There are other factors, too, that may upset the government program. These include the following:

- The dissatisfaction among many producers over the progress and the extent of imports reductions (page 11).
- The Pentagon's big purchase of jet fuel in the Caribbean, which domestic refiners and producers feel is poor policy at a time when the government is seeking to keep crude imports down.
- Signs that imports of residual fuel oil will be stepped up, partly because of the military jet fuel purchases in the Caribbean.
- Rumblings from West Coast producers, who fear crude imports into District 5 will be increased above the 275,000 b/d "assumed" in the Cabinet committee formula.

All in all, the government may find its optimism was a bit premature.

Texas Deep Well Story: No Oil Yet



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The deepest well ever drilled in Texas—and hole is still being made—demonstrates the strain such an undertaking puts on material, men, and money.

The record well is the Pan American Petroleum Corp. No. 1-CS University, in Pecos County.

It set a new state depth record Aug. 6 when the drill bit hit 19,078 ft.

Early this week, the well reached 20,647 ft., and was steadily going deeper without a hitch.

(Meanwhile, in Oklahoma, it was reported that drilling had stopped at 20,407 ft. at Oklahoma's record-depth well, Magnolia's No. 1 Sterba-Ordovician in Caddo County. Magnolia asked other participants for approval to stop and back up to a springer topped at 14,008 ft., which was cored at 14,334-53 ft. to show stained sand.)

A tremendous amount of money—more than $5.5-million to date—has been poured into the record-setting Texas project.

More than $4.5-million was involved even before the hole was spudded by Pan Am and Gulf, which had a one-half working interest in the project down to 17,000 ft.

The lease itself cost $4,443,000. In addition, Pan Am and Gulf spent perhaps $150,000 on seismic research.

Drilling costs have already run past $1-million.

Nugent Brasher, Pan American district exploration superintendent in Midland, Tex., says the total cost of the operation can't be estimated yet.

"For one thing, we don't know what our final total depth will be," he explains.

He says hole is being made at the rate of 35 ft. daily, and that drilling costs at the well's extreme depth "are very high."

The wildcat originally was started as a 16,000-ft. operation.

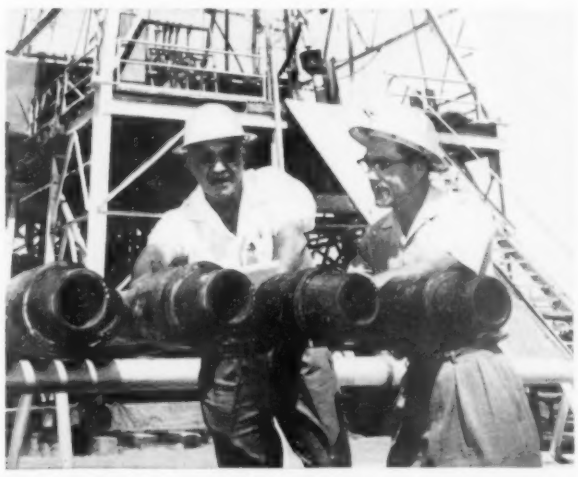
"Our goal was to test the Devonian, which we thought would be found at a much shallower depth than the one at which we are now drilling," Brasher says. "I might add that just about every geologist in the country has been fooled by our failure to reach the Devonian before now. At 20,078 ft., for instance, we were in the Barnett shale."

The project is being drilled at the southwest edge of the Fort Stockton arch, and is in the northern portion of the Sheffield channel.

Brasher attributes the low position of the Devonian to a block-faulting condition.

"What may be a record is the 9,600 ft. of Wolfcamp section we cut while drilling through that formation," the drilling superintendent says.

The record-breaking wildcat is unique in more ways than great



IT'S A TOUGH STRAIN on the drill string. Two Pan Am men inspect some extra-strength vanadium steel pipe.

WILL IT PAY OFF? Nugent Brasher, left, and Charles Brown study the latest bit cuttings with great care.

depth. For instance, not one hour of drilling time has been lost due to normal hole troubles.

There have been no fishing jobs, no lost circulation, no stuck drill pipe. And no one has been injured at the drill site.

"I believe this is the first project ever drilled to such a depth that has been completely free of trouble since the spudding date," says Fred Beleau, Pan American district superintendent in Midland.

The No. 1-CS University has been shut down only twice, and both were for logging jobs.

Only three drillstem tests have been made in the hole. They were at 6,400 ft., 7,400 ft., and 17,000 ft. Each failed to develop a commercial show.

The staying power of the drillers and tool pushers has been another feature of the project.

"On a project such as this, there usually is a big turnover in hands," says Beleau. "But we still have the three original drillers."

The equipment has done well, too. Some of it is credited with helping to hold down costs.

Parker Drilling Co., with headquarters in Tulsa, has the drilling contract.

Parker started work at the drill site more than 11 months ago. Since that time, more than 290 bits, both chert and hard rock, have been used.

At the present depth of the well, it takes about 12 hours for a round trip for a new bit.

The gas-electric rig is powered by two 1,000-hp. engines, which drive three 250-volt generators to 1,500 electric hp.

"This rig has aided in keeping costs down," Beleau says.

The operators are especially pleased with the performance of the special vanadium-alloy drill pipe used in the upper half of the drill string.

"Although the pipe is much more expensive than conventional drill pipe, its extra strength, I feel sure, has been responsible for no twist-offs, thereby saving us much extra cost on fishing jobs," Beleau reports. "We have more than 10,000 ft. of the special alloy on the drill string now."

All in all, the well has a remarkable record of trouble-free progress.

Water needs for No. 1-CS University are supplied by two 300-ft. water wells, equipped with conventional oil well pumps and pump units. About 500 tanks are used to maintain mud volume in the hole.

The lost-circulation problem has been partially overcome by a mud mixture which is slightly heavier than normal. It contains 11% oil, and several chemicals, Beleau reports.

All of this good "luck" in drilling the well, however, won't be of any help if No. 1-CS University is a dry hole. Beleau and Brasher agree that drilling will continue as long as the hole is in good shape, or until tests can be made in the Devonian.

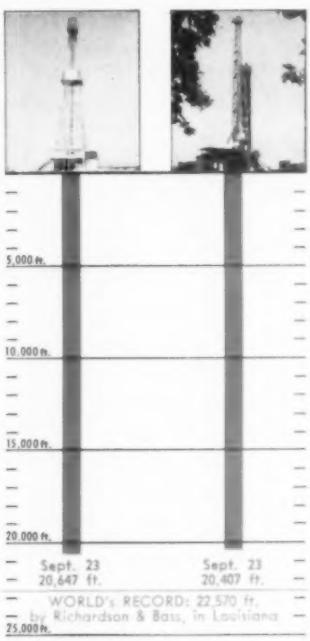
After all, it's hard to quit when you're down that far—at a total cost of several million dollars.

Although they aren't aiming at the world record depth of 22,570 ft.—they'd rather hit a pay zone before then—it appears likely now that they are prepared to go that deep if they have to.

Latest score on . . .

Deep Well Derby

TEXAS vs. OKLAHOMA



The race between the record-depth wells in Texas and Oklahoma involves these two rivals:

- The Pan Am No. 1-CS University in Pecos County, Texas, which hit a Texas drilling depth record of 19,708 ft. early this month.
- Magnolia's No. 1 Sterba-Ordovician in Caddo County, Oklahoma. It has already added more than 2,000 ft. to the old Oklahoma record of 18,158 ft.

(To be continued next week)

TGT Sells Stock In Trans-Canada

Tennessee Gas Transmission Co. has reportedly sold one-third of its major holdings in Trans-Canada Pipe Lines, Ltd., and is said to be ready to sell another third.

TGT's 327,790 shares originally accounted for 17% of the ownership in the Canadian firm, which is now building a large-diameter pipeline system to connect Alberta gas reserves with eastern Canadian markets (PW—Nov.25'55,p24).

This week, however, the Canadian press reported that TGT has sold 100,000 of its shares—85,000 to a Canadian oil company, 5,000 to a Toronto investment firm, and 10,000 to "U.S. interests." According to the same reports, TGT is ready to sell another 100,000 of its Trans-Canada shares—with the same Canadian oil company as the likely purchaser.

No reason is given for TGT's sale of the Trans-Canada stock. However, the recent demands of the new Canadian Conservative government for increased home-ownership of Canadian industry may well have been an important factor.

Foreign ownership—especially American—of Canadian industry has long been a political football north of the border. Canadian conservatives, who howled about "growing American influence on the Canadian economy" while out of office for the past 22 years, were elected last June on a platform of "lessening Canadian dependence on U.S. businessmen."

A sweeping attack on U.S. participants in Canadian industry isn't likely. However, more American oil and gas firms may find investment in Canadian industry less attractive in the future.

TGT's sale of Trans-Canada stock isn't necessarily a straw in the wind; other U.S. firms will decide whether to maintain participation in Canadian oil and gas developments according to their individual circumstances.

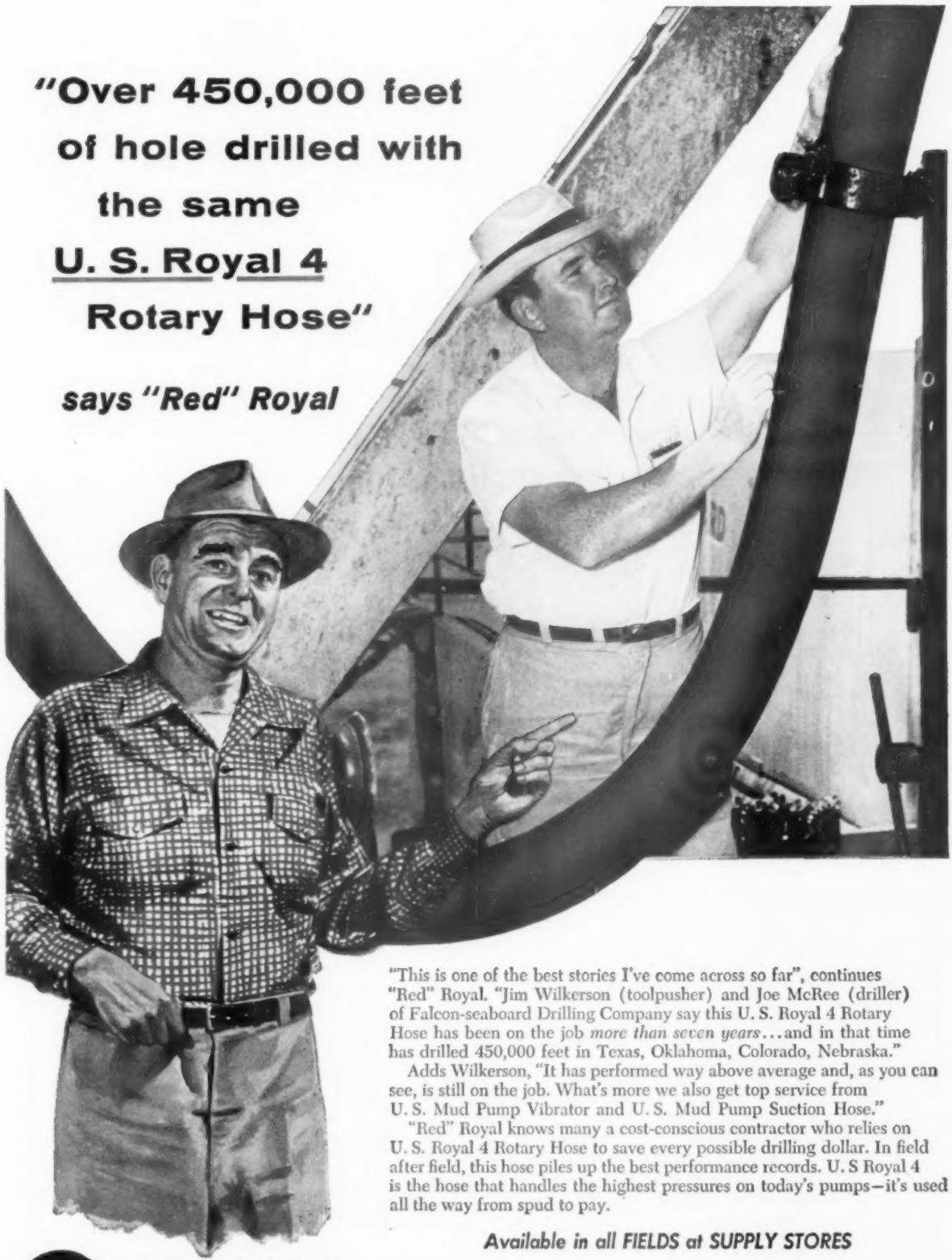
But the sale does tend to spotlight the fact that U.S. investments in Canadian industry may not be as welcome as they have been. The Tories are committed to cutting down "U.S. dominance."

Meanwhile, progress continues on Trans-Canada's line which will bring Alberta natural gas to the growing East Canada market, 2,300 mi. away.

Last week Trans-Canada sold its first Alberta gas in Regina. This week, gas reached Winnipeg.

"Over 450,000 feet of hole drilled with the same U. S. Royal 4 Rotary Hose"

says "Red" Royal



"This is one of the best stories I've come across so far", continues "Red" Royal. "Jim Wilkerson (toolpusher) and Joe McRee (driller) of Falcon-seaboard Drilling Company say this U. S. Royal 4 Rotary Hose has been on the job *more than seven years*...and in that time has drilled 450,000 feet in Texas, Oklahoma, Colorado, Nebraska."

Adds Wilkerson, "It has performed way above average and, as you can see, is still on the job. What's more we also get top service from U. S. Mud Pump Vibrator and U. S. Mud Pump Suction Hose."

"Red" Royal knows many a cost-conscious contractor who relies on U. S. Royal 4 Rotary Hose to save every possible drilling dollar. In field after field, this hose piles up the best performance records. U. S Royal 4 is the hose that handles the highest pressures on today's pumps—it's used all the way from spud to pay.

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What's New / IN THE INDUSTRY

API Cues Annual Meeting To Three-Day Session

The API annual meeting in Chicago this November will be cut to a three-day session, one day shorter than in previous years.

The preliminary program announced this week shows that the 37th annual meeting, in Chicago, will run from Monday, Nov. 11, through Wednesday afternoon, Nov. 13. But as in past years, some committee and subcommittee meetings are scheduled to start three and four days ahead of the general meeting.

The shorter meeting this year, though, will include the same number of general and division group sessions as in former years. The general sessions this year are scheduled for Monday afternoon and Wednesday morning.

API President Frank M. Porter and Interior Secretary Fred A. Seaton will be the speakers for the Monday afternoon general session. And those speaking before the Wednesday general session will be Charlton H. Lyons, president of the Mid-Continent Oil & Gas Assn., Philip D. Reed, chairman of General Electric Co., and Sen. Lyndon B. Johnson (D., Tex.).

Lt. Gen. Ernest O. Thompson, senior member of the Texas Railroad Commission, and Matthew V. Carson, administrator of the voluntary import-control program, will speak at the production division group session Tuesday afternoon.

•

Northeast Ohio Discovery

A drilling spurt is expected in northeastern Ohio in the wake of Ashtabula County's first oil discovery.

Benedum-Trees Oil Co., Penn-Ohio Gas Co., and Hiawatha Oil & Gas Co. No. 1 Thomas J. Scribener, section 22, Monroe Township, 3 mi. west of the Pennsylvania border, on test after fracturing, flowed 80 bbl. per hour through 7-in. casing, according to Earl Linn, Hiawatha geologist.

Linn said the production came from the Medina (lower Silurian) through perforations at 3,292-340 ft.

Nearest production is in the Titusville field, about 65 mi. east, near Oil City, Pa.

Linn said the companies had drilled several dry holes on the Northwest Shelf of the Appalachian Basin, but none in the immediate vicinity of No. 1 Scribener. The operators have about 10,000 acres under lease in the area.

•

The Federal Trade Commission will resume its hearings on the charge of price discrimination against Pure Oil Co. Dec. 9, armed with a new decision on price reductions.

The decision that government attorneys are expected to bring into the Pure case is one the FTC handed down last week against Anheuser-Busch, Inc. The commission ruled that Anheuser-Busch violated the Robinson-Patman Act when it reduced prices to dealers over a city-wide trading area while maintaining prices in the rest of the country.

Share of a given market was considered to be a key point in the decision. Anheuser-Busch's price cuts were followed by a substantial gain in sales.

Pure Oil attorneys say the company lowered prices in Birmingham in good faith to meet competition. Pure, the lawyers say, did not increase its share of the market even "one point" during the period of the price cut.

•

Union Oil Co. of California is cutting its forces in California by about 15%, due to "slackened drilling activity."

The exploration department appears to be hardest hit by the reduction. In the San Joaquin Valley division headquarters, at Bakersfield, 11 of the 67 employees are being released and two are being transferred, all effective Oct. 1.

Cuts are also being made in the southern division, at Santa Fe Springs.

Two of the company's four California divisions—the Coastal division, at Orcutt, and the Ventura division, at Santa Paula—are being combined.

A company spokesman attributed the lower drilling activity to imports, the lack of major discoveries in California, and the failure of offshore activity to take up the slack of the generally lower onshore activity.

•

The Navajo Tribal Council is seeking to establish a 16⅔% royalty pattern on Indian oil and gas leases on "proved" areas in the vicinity of the Aneth pool, San Juan County, Utah.

The request for the higher royalty was made known in an invitation to bid on some 370,000 acres of Indian land in Utah and northern Arizona.

Only the portions near production in the Aneth pool, which are to be divided into 160-acre tracts, will carry a one-sixth royalty, according to Paul Jones, council chairman.

Wildcat areas west and south of the pool will continue to carry a one-eighth royalty, he said.

Jones said the reason for the higher royalty is that the acreage in the Aneth area are considered to be "proved." He said provisions for increased royalty in this case is made in Interior Dept. regulations applicable to Indian lands.

•

Louisiana will air its complaint over the Navy's intention of using some 1,000 sq. mi. of onshore and offshore lands on the Vermilion Parish coast as a gunnery range before a Civil Aeronautics Administration subcommittee in Atlanta Wednesday.

Louisiana Atty. Gen. Jack Gremillion will argue that use of the 25x40-mi. area as a gunnery range would halt production in eight offshore oil fields. Most oil companies operating in the area have advised Louisiana that they will either join the protest or be present at the hearing.

•

J. L. Irvin has been named president of the reorganized Gulf Refining Co., Houston, which is now exclusively a pipeline company, operating all domestic crude and products lines of Gulf Oil Corp.

Irvin was formerly vice-president and general manager of Gulf's domestic pipeline department. The new vice-presidents are W. L. Shannon, formerly manager of pipeline operations, and M. W. Ramsey, formerly coordinator of pipeline operations.

As of last Dec. 31, the assets of Gulf Refining, up to then a producing, refining, and marketing subsidiary, were transferred to the parent company.

•

The Interior Dept. is nearly set to offer up to 23-million acres of public land in Alaska for leasing.

Still to be decided is the amount of land to be opened for bidding—the entire 23-million acres in northern Alaska, bordering Naval Petroleum Reserve No. 4, or just the area near the Gubik Bay gas field. The latter is partly within the reserve.

A Pipeline Goes to Sea — in a Hurry

1

THE PIPE ARRIVES at the Brown & Root pipe-laying barge, where work is being pushed on construction of the TGT-CATC natural gas pipeline to link offshore Louisiana gas reserves with TGT's main system at Kinder, La.

2

FAR FROM SHORE, the big barge (300 ft. by 60 ft.) is a busy workshop. The incoming pipe is jockeyed into position for welding. Meanwhile, other barges are busy elsewhere along the route of the line, which will reach out more than 25 mi. into the Gulf of Mexico.

3

JOINTS ARE WELDED at sheds on the deck of the barge. Crews are keeping the work going around the clock. The main line, of 26-in. pipe, extends to a gathering platform, where it connects with smaller branch lines.

4

THE PIPE GOES IN, gently, from a new float system, called a stinger, at the end of the barge. With two joined pipes forming a cradle, the concrete-covered line is eased to the Gulf floor without cracking the covering.

Looking Ahead in Washington

McGraw-Hill
Washington
Bureau

September 27, 1957

Senate antitrusters may challenge the voluntary oil imports program. Some lawyers claim that, based on the Madison case of the 1930s, participants in the program may be subject to prosecution later. Attorney General Herbert Brownell has cleared the program, but has not—and cannot—grant actual antitrust exemptions. The Senate antitrust subcommittee has kept a close eye on the hearings before M. V. Carson, imports boss, with a view toward possible investigation. But a decision probably won't be made until developments show how the program will work in practice.

•

New ammunition for the oil imports fight is coming up. The House foreign trade subcommittee is conducting a study that will lay the groundwork for proposed renewal of the Reciprocal Trade Agreement Act. Scholarly papers on both sides of the trade issue have been received, and will be issued within a week or so. Then the subcommittee will hold panel discussions in December. The House group has a paper from the Independent Petroleum Assn. of American, but laments the fact that no major oil company has come forward to present the oil importers' side.

The coal industry wants to strengthen the defense essentiality provision. So far, the National Coal Assn. has failed to convince the Eisenhower Administration that action should be taken against residual fuel oil imports. So the organization will try in 1958 to amend the trade law so as to guarantee protection for the coal industry under Section 7, the defense essentiality provision. Coal expects to have the help of independent oil producers if the current voluntary effort breaks down.

•

The fate of several fast tax writeoffs for oil looks dim. When Congress passed the Byrd bill, virtually killing the rapid tax amortization program, construction still had not begun on many approved projects. In the past, renewal of unused certificates was common. But now the Office of Defense Mobilization is rewriting its rules. One result is expected to be a tough attitude toward renewal of certificates for a dozen oil projects.

•

Watch for an effort to clarify tax laws on advertising expenditures. Business groups—including oil—fear a new regulation proposed for adoption by the Internal Revenue Service would endanger public relations efforts. IRS would rule out deductibility for "propaganda" intended to influence legislation, including expenditures for "other than trade advertising." It is feared that normal efforts to promote public understanding would be hit. A bill will be introduced next year to thwart IRS. It may even try to insure deductibility for all legal expenditures—even for lobbying.

•

The Navy plans to lease out its oil shale facilities in Colorado. Within a week or two, the Office of Naval Petroleum reserves expects to invite company bids on a proposed lease of the retort and mining facilities at Rifle. Secretary of the Interior Fred A. Seaton already has indicated that he has no objection to such a move, since Congress won't give the Bureau of Mines money for the operation.

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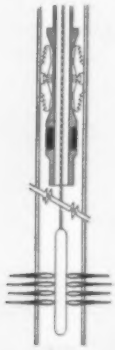

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Platform Proposed for 600-ft. Waters

Plans have been proposed for a "superdepth" offshore drilling platform that would open up the entire Continental Shelf to oil exploration.

The Continental Shelf generally is considered to mean that area of the sea bottom extending from shore line to 600-ft. depth.

Up to now, drilling for offshore oil has been restricted to waters no deeper than 125 ft., with the great bulk of such drilling carried on in waters about half that depth, or less.

The Continental Shelves of the U.S. cover about 750,000 sq. mi., of which about 130,000 sq. mi. are in the Gulf of Mexico. The land area of the U.S., by comparison, is about 3-million sq. mi.

Off the Louisiana coast, the shelf slopes gently for nearly 140 mi. out into the Gulf of Mexico, twice the distance at which the 100-ft. depth level is reached (though both depths are found much closer to shore in the Mississippi Delta area).

Off California, on the other hand, the shelf drops sharply, reaching the 600-ft. depth in a very few miles.

Details of the offshore platform able to operate in waters 600 ft. deep were disclosed this week by R. G. LeTourneau, vice-president of R. G. LeTourneau, Inc., Longview, Tex.

LeTourneau outlined plans for the platform of the future in a talk given at the annual meeting of the American Society of Mechanical Engineers, Petroleum Mechanical Engineering Conference, in Tulsa.

His paper gave answers to such problems as: basic and technical requirements for platforms capable of drilling in waters 100 ft. to 600 ft. deep; drilling of multiple wells from a single mobile platform; conversion of mobile platforms to fixed platforms for development operations; probable costs for units designed for 600-ft. waters; factors of equipment obsolescence; and other platform elements pertinent to opening of new offshore areas.

The superdepth, self-elevating platform would have an open-truss, tripod design. It would be capable of operating as a mobile unit, or as a permanent-type platform.

The tripod-type self-elevating platform, LeTourneau said, is basically a barge having three spuds, or legs, carried in a retracted position when the unit is afloat.

The barge is towed by tugs to its drilling site, where the spuds are lowered to the ocean floor. Pontoons, which enclose the lower ends of the spuds, are water-filled. The difference between the specific gravities of the water and the displaced mud on the ocean bottom give the pontoons a buoyant effect and reduce the load on the spuds.

At least three spuds are needed, LeTourneau added, in the event that the ocean bottom at the well location may not be level. The barge or platform itself can be maintained in level position by vertically adjusting any of the three spuds.

Two of the three spuds are sufficient to support the entire load. Three such legs, therefore, comprise the basic economical unit. More than three spuds could well be used, but only at substantially higher cost.

The bulk of the drilling machinery is located within the barge hull. The spud pontoons, when afloat, are normally empty, and are drawn up to a position within the spud wells of the barge.

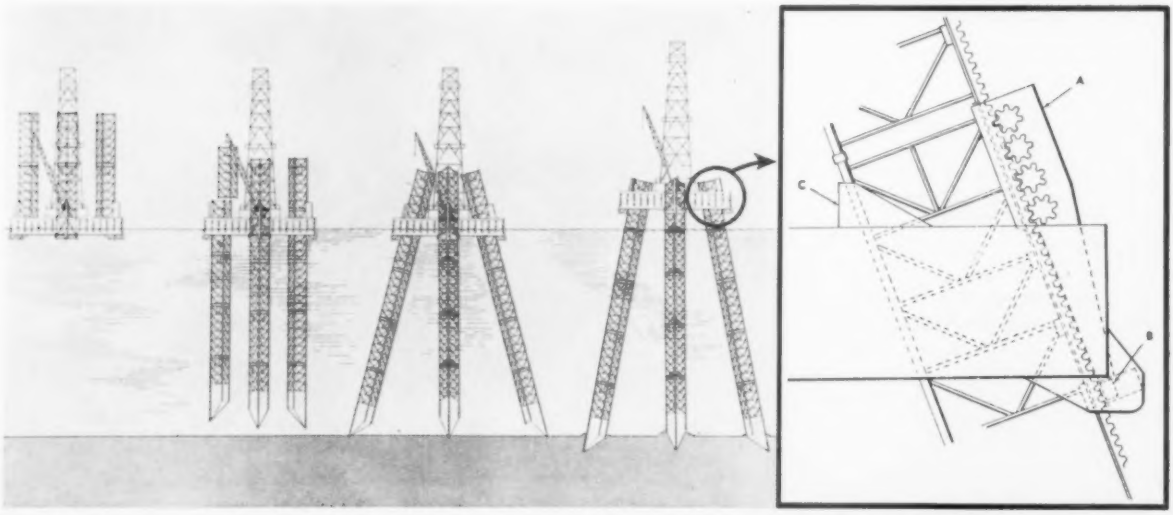
Should an emergency arise when the unit is afloat, the crew on the barge can safely lower the spuds in roughening seas and increase the stability still further.

And if needed, the barge can be elevated above the waves.

To gain stability in deep waters, the platform's three legs will be spread out at predetermined angles, much like the angled legs of a conventional tripod.

But when the platform is being towed to the drilling site, most of the spud sections will be carried disassembled on the platform's deck. These will be added only after the unit arrives on location and begins lowering its feet to the ocean floor. During most of the lowering the spuds are kept in vertical position (pictures).

The additional sections of spud



FOUR STAGES—setting location, lowering of spuds, setting spuds at predetermined angle, and elevation of platform—are necessary for positioning the proposed deep-water platform (left). "Spud locomotives" (right)—which are made up of gear motors at A, hinged to barge at B, and guided at C—lower spuds, and raise platform either on all spuds at once or one at a time, for leveling.

are added by means of a platform crane.

Lowering in vertical position is continued until spud feet are about 8 to 12 ft. above bottom. The spuds then are set at the predetermined angle and lowered onto, or into, the bottom. When adequate bottom resistance is encountered, the barge is elevated.

The platform is elevated by "spud locomotives," each of which is made up of several electric gear-motors.

The "spud locomotives" are hinged to the barge in such a way as to enable the barge to climb its inclined stairways on all spuds at once, or independently, for adjustment (see drawing).

Guides within the "spud locomotive" frames maintain a firm grasp on the rack section of the spuds. Barge guides provide additional spud-to-barge bearing. High-capacity disc brakes on the gear-motors hold the platform in place.

Since the platform in its elevated position is essentially an elevated construction barge, its own heavy-duty crane can unload drilling equipment and supplies from a barge and place them in position on the platform.

The lattice-work spuds are made up mostly of small, round members. These offer the least resistance to wave action, whatever the direction.

LeTourneau noted that considerable research is under way to record actual wave heights and forces.

A common criteria is a wave force associated with storm waves of a maximum height of 40 ft., in waters to 80 ft.

In any case, it is required that the bottom of the elevated platform be above all waves. In waters upward of 100 ft. deep, waves of 50 ft. or more may be indicated as reasonable, LeTourneau said.

Wind forces also must be considered, but these vary considerably with locality, and generally can be pinned down once the area of operation is known. In the Gulf, for instance, provision must be made for the hurricane winds that lash the area frequently.

On a cost basis, a platform capable of drilling 10,000-ft. wells in water depths of 150-300 ft. will probably cost $11,000 per ft. of water depth.

"Sufficient interest has been expressed in platforms for 300-ft. depths to warrant the careful cost estimates which I have set forth in the paper," LeTourneau told PETROLEUM WEEK.

"It would be difficult to forecast just what we would be running into on the deeper platforms—although, of course, we have definitely established that the platforms for 300- to 600-ft. depths are completely feasible."

He added that there is some question, at this point, whether cost factors for the 300-600-ft. units would diminish or increase, as compared with the 100-300-ft. units.

The cost factor has been analyzed on the basis of mass production techniques in heavy fabrication.

Obsolescence can be minimized, LeTourneau added, with a self-elevating mobile platform so designed that it can serve also as a fixed platform, to be left permanently on the site.

With the deep-water design proposed, the large crane and the diesel-electric power elevating source of the "spud locomotives" are removable. These could save up to one-third of the investment cost when put in service with another platform.

LeTourneau said operators disagree on the most desirable number of wells to be drilled from one platform. But he added that a trend seems to be indicated, in Gulf of Mexico areas, toward six or eight per platform, and sometimes 12.

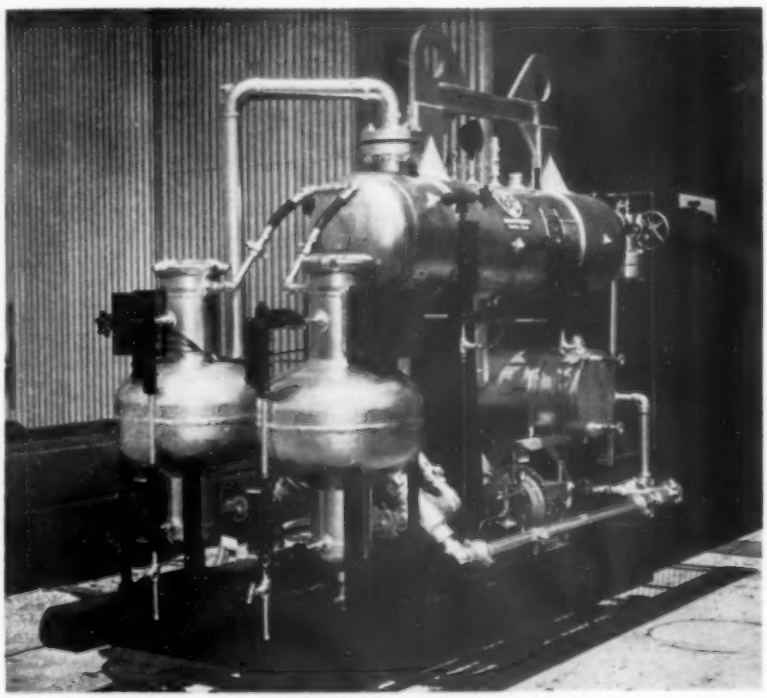
Multiple wells are normal operating procedure in development fields drilled from fixed platforms. Multiple wells also are equally as practical, LeTourneau noted, from some mobile platforms.

Use of a multiple-position derrick crown block is desirable; therefore, a two-position crown block provides two drilling positions, and by both lateral and longitudinal movement of the substructure, a total of eight positions can be established. All well positions on the platform are 6 ft. apart, but this separation distance could be varied.

In deep water, a mobile platform converted to a fixed platform can provide drillstem clearance right through the platform, if desired, and accommodate 30 wells or more.

LeTourneau maintained that self-elevating mobile platforms as a base for well-drilling operations in deep water are practical, and a "must" for wildcatting.

Their economical conversion to fixed platforms for multiple wells, LeTourneau said, "will contribute in large measure to reducing oil production costs offshore."



Wellchecker Built for Offshore Work

Rolo Mfg. Co., of Houston, has introduced this new skid-mounted wellchecker, specifically designed for offshore work.

The unit separates and meters oil, water, and gas.

It has a working pressure of 1,200 psi. In addition to checking production of new wells, the portable well-checker can be easily installed to analyze established producers, says the company.

New Drilling Developments Reported

Developments in air drilling and bit design were among many drilling and production developments and problems discussed this week at the Petroleum Mechanical Engineering Conference, sponsored by the American Society of Mechanical Engineers, at Tulsa.

Technical papers were also presented at the meeting on offshore safety valves, high-pressure wellhead connections, and other subjects of interest to the industry.

The results of three years of air drilling in the Appalachian Basin were discussed by H. J. Magner, of Delta Drilling Co.

In the Appalachian region, he said, a modified aerated technique is used in the water string or surface hole, which extends from the surface to a depth of 1,000 ft. Water is frequently added to the air stream to dissolve the cuttings and allow them to be blown from the hole.

Below this section is the production string hole, which extends from below the 9⅝-in. casing in the water string to approximately 7,200 ft. in this region. Sandstones are drilled at a rate of 30 ft. per hour. Shales are "blown out" at rates of up to 1,000 ft. per hour.

This section of the hole is the most economical for air drilling as compared with fluid drilling. The doubling of penetration rates reduced over-all rig time per well by 30%.

In air drilling, wear on drill pipe and collars has been reduced by more than 50%. Magner cites one string of pipe which has been in continuous service for three years.

The dry hole creates dead loads approximately 30% greater than exist with fluid. This feature alters normal standards on many pieces of rig equipment. Engine repairs and overhauls are more frequent with air operations, probably double that of fluid.

Deviation, a major problem with air drilling, is accentuated by fast penetration, says Magner.

Another deterrent to air operations is water entry into the hole. Experimentation is now being carried on, says Magner, on the proper evaluation of the water horizon in a well, and the application of correct shutoff techniques.

Experiments on bit designs with air applications are also being made.

The development of a wellhead connection for pressures up to 15,000 psi. was discussed by R. C. Brooks, of Cameron Iron Works, Inc.

In 1952, says Brooks, a company completed a well which had a surface-tubing pressure of more than 10,000 psi. This indicated that demand would soon develop for wellhead equipment and valves rated at a working pressure in excess of that figure. The matter was taken up by the Assn. of Wellhead Equipment Manufacturers, which began tests for the development of a series of end connections for wellhead and Christmas tree components for high working pressure.

Object of the tests was to determine the relationship between bolting makeup and pressure resulting in leaking of the gasket. For the tests, two 4-in. blind flanges with 10,000-psi. working pressure were assembled and hydrostatically tested.

Tests verified the fact that there is a direct relationship between bolting torque and leakage pressure; that the point of seal is neither on the outside nor inside diameter of the gasket, but somewhere between; and that the location of the seal is not necessarily consistent.

Other tests determined that the surface finish in itself cannot effectively correct a leak, or make a tight seal, if the pressure-contact ratio is not adequate for the operating conditions.

In June of this year, AWHEM published a standard titled "AWHEM Specification for Ring-Joint Flanges for Drilling and Production Service for 15,000-psi. Working Pressure." During the past year, some wellhead assemblies utilizing this connection have been manufactured and put into field service.

Brooks feels that the new tool has been thoroughly laboratory-checked, and will be of use to the industry in deeper wells.

A new three-cone retractable bit has been developed, which, under proper conditions, could save about 25% of penetration costs in medium-depth drilling, said J. M. Kamp, J. E. Ortluff, and R. H. Blood, of Carter Oil Co.

Drilling with retractable bits was analyzed to see if drilling costs could be reduced by this method.

In the drilling system analyzed, 7-in. OD casing was selected for the drill string. The bits pass in a collapsed position through the casing, then expand to cut a large enough hole (9¾-in.) to pass the casing.

A four-cone bit was developed first, designed to carry the collapsed cutters in pairs. The generally low performance level of the four-cone bit was the result of the small size of the cones as compared with that of standard bit cones for the same 9¾-in. hole size.

A three-cone bit was then tested, both in the laboratory and the field. In these tests, bit performance compared very favorably with that of a conventional tricone bit. The Carter engineers feel that this is due to the relatively large size of the cones in this model, which approach conventional cone size. Using three-cone retractible bits, the cones are arranged in single file when the bit is collapsed.

Several possible uses have been suggested by the engineers. Drilling down surface casing in areas of caving surface formation is one. Another possible use is in conjunction with reelable downhole-powered drills driven by fluid power or electrical energy.

Both the three- and four-cone bit designs have been licensed to a manufacturer, on a nonexclusive basis.

A surface-controlled subsurface safety device for offshore locations was described by L. M. Wilhoit and P. S. Sizer, of Otis Pressure Control, Inc.

With the rapid extension of offshore operations into shipping lanes, with increased danger of damage to producing wells, they said, it was necessary to develop a safety device that would not have the disadvantages of the tubing safety valve, which was not suitable for wells with a large volume of flow.

The new, ball-type valve will close-in a well in case of an accident that would cause the well to flow uncontrolled, or in case of a flow-line break. The safety valve can also be used to close-in the well automatically in an emergency, such as pump failure. The system closes the valve by releasing the hydraulic-fluid pressure in the ⅛-in. line pipe connected to the safety valve.

The surface-control system is contained in a unitized manifold installed at the wellhead. Pressure lines connect the manifold to the flow line, the Christmas tree, and the safety valve in the well.

The surface-controlled subsurface device, say the authors, is suitable for use in conventional or permanent-type well completions. Also, since the tubing is hung in the casing below the safety valve, the upper portion of the casing is protected against blowouts, and repairs to the well or surface equipment are less hazardous.

Mud Additive Cuts Deep-Well Costs

In an attempt to increase penetration rates and cut down on drilling costs, a Texas drilling company is using a low-solids mud made with Driscose—a high-viscosity mud additive—on a deep test in West Texas.

Driscose is sodium carboxymethylcellulose, a cottony-fibrous mud additive patented by Drilling Specialties Co., Bartlesville, Okla., a subsidiary of Phillips Petroleum Co.

The Texas test is Phillips Petroleum Co. No. 1-A Montgomery, in Pecos County, projected to 22,000 ft.

Great Western Drilling Co. is using a new diesel-electric rig with a Unit drawworks for the test (PW—Jul.19 '57,p25). Crews are now drilling below 4,000 ft.

The Pecos County test is a current example of a new use of an old product. Driscose, which has been on the market for several years, is finding new uses in deep, high-temperature tests. The product is handled by most mud companies.

According to Drilling Specialties Co., the use of low-solids muds compounded with high-viscosity pure Driscose will reduce drilling time, increase bit penetration rates, cut down bit wear, and save money on mud costs.

W. Bruce Lerch, technical consultant for the company at Bartlesville; D. F. Bailey, division superintendent at Midland; and R. A. Wynne, division superintendent at Tulsa; told PETROLEUM WEEK that footage rates, per bit, have been increased from 22% to 97%, and penetration rates from 26% to 48% on several wells that have used Driscose.

The most effective way to obtain a low-solids drilling fluid that has the desired mud properties, the company claims, is through the use of a special type of Driscose compounded with water.

"From an economic and operating viewpoint," say Lerch, Bailey, and Wynne, "considerable attention has been focused on the removal of clay solids from drilling fluids. The effect of the removal of solids is most pronounced in low-density muds, weighing 10 lb. per gallon or less."

In low-density muds, a special type of high-viscosity Driscose—better than 99% active carboxymethyl-cellulose—is used. A 1% water solution gives a Brookfield viscosity of over 2,000 centipoises, as compared to 600 centipoises for medium-viscosity pure Driscose.

One pound per barrel of medium-grade Driscose in bentonite-water mixtures will raise the viscosity of the 3% bentonite solution from 3 to 17 centipoises. In comparison, ½ lb. per bbl. of pure high-viscosity Driscose will raise the viscosity to 26 centipoises. One lb. per bbl. of high-viscosity material will raise the viscosity of the 3% bentonite solution to 54 centipoises.

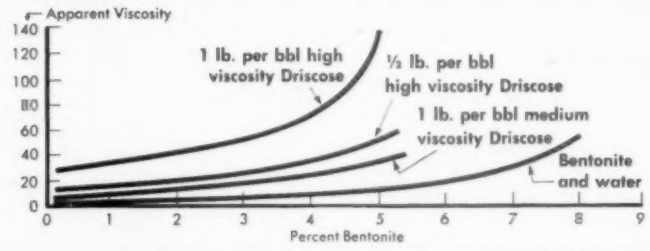
By substituting a small amount of this Driscose for large amounts of bentonite, the company says, the solids content of the drilling fluid is substantially reduced.

If mud control is started before excessive hole enlargement occurs, and if sufficient pump capacity is available, a low-solids mud having a low viscosity can be used successfully.

Besides the economic advantages of longer bit life and increased penetration, other advantages of a low-solids mud are also cited by the company.

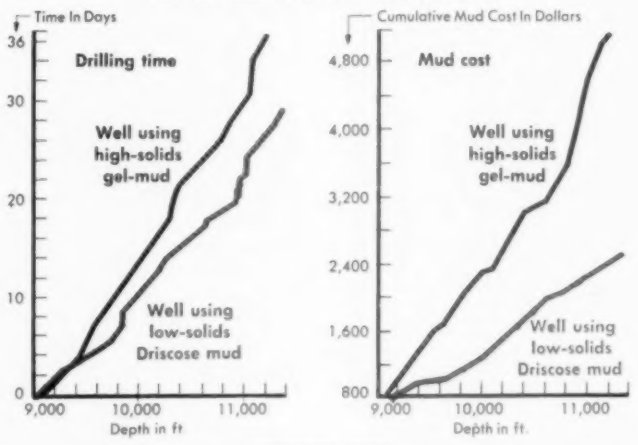
- Pressure surges, which contribute to lost circulation, are reduced by use of a low-solids, low-viscosity mud.
- Down-hole pressure increases,

How Driscose increases viscosity of bentonite-water mixtures



How Driscose saved time and money

(Comparative data on two wells in Seminole area, West Texas)

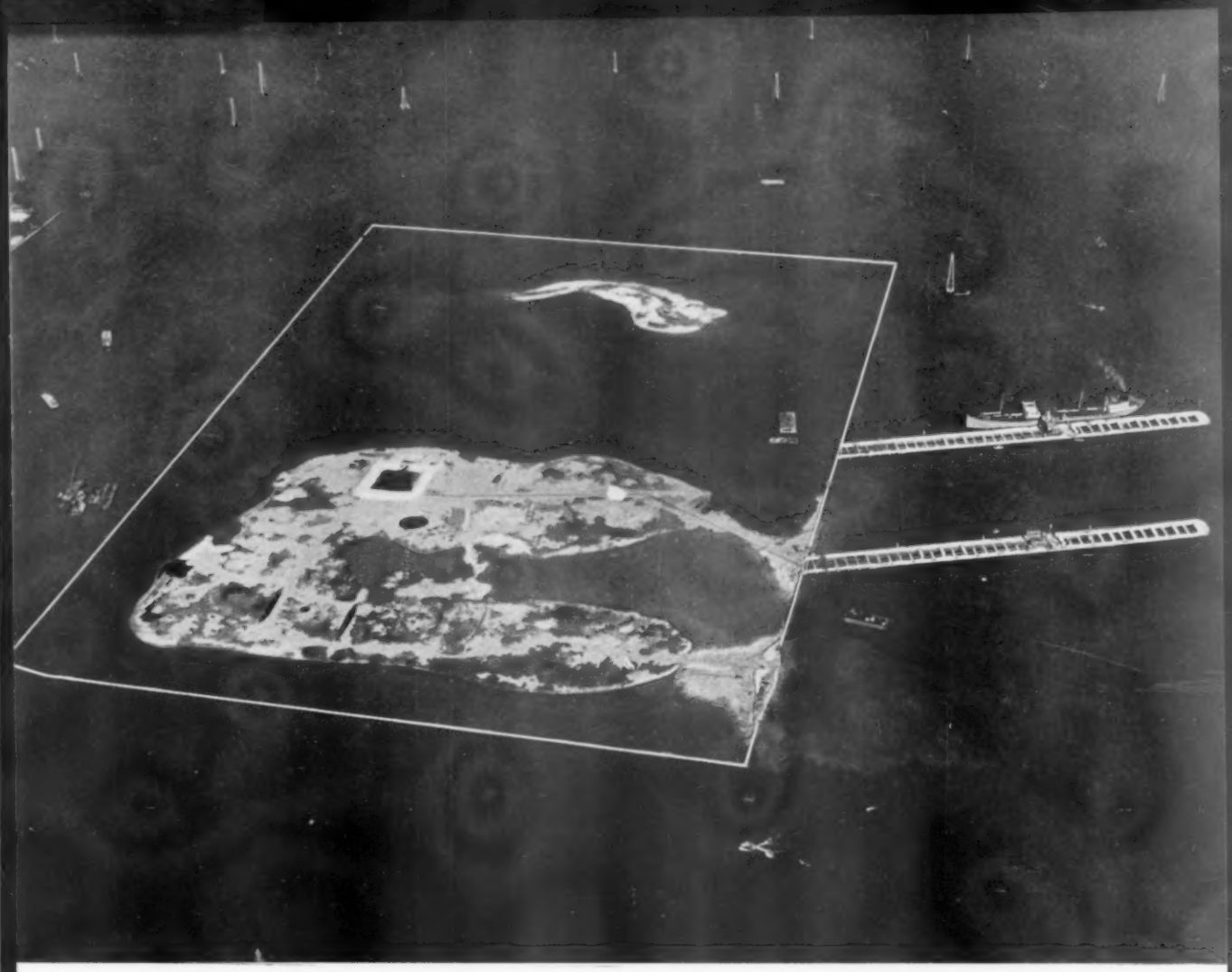


DRILLING DATA

	Gel-Mud	Driscose Mud
Interval Compared	9000′ – 11,200′	9000′ – 11,200′
Number of Bits (8¾-in.)	38	28
Rotating Hours	344.5	230.5
Average Feet per Rotating Hour	6.4	9.5
Average Feet per Bit	58	79
Increase in Penetration Rate	—	48%
Increase in Footage per Bit	—	36%
Mud Costs	$5,200	$2,600

SAVINGS

10 Days Drilling @ $1100 per Day	$11,000
10 Bits @ $207 each	2,070
Mud Savings	2,600
Total Savings	$15,670



The order was to build an island..

AND RAYMOND* DID JUST THAT FOR CREOLE PETROLEUM COMPANY

**In a joint venture with Brown & Root*

Creole needed additional storage and loading facilities at Lake Maracaibo, and the most feasible way to assure enough space was to build an island a half mile from shore. This is no small task, as you may well imagine. Raymond, working in conjunction with Brown & Root, installed a rectangular 2000 by 2900 foot sheetpile wall as the first step. Currently, the section of the lake enclosed is being filled in. When completed, Creole will have an ample 125 acre island for their storage needs. In addition to the island, two 1100 by 80 foot piers were constructed to enlarge Creole's loading facilities by a considerable margin.

But this is just a part of Raymond's many activities in the booming Lake Maracaibo area. Now under construction is a new manufacturing yard to provide a steady flow of Raymond's prestressed concrete cylinder piles, and other prestressed products, for offshore drilling platforms. Raymond is proud of its role at the important Lake Maracaibo region, and of its service to the industry's growth over the past 50 years. Why don't you, too, investigate the advantages of using Raymond methods, materials and experience on your next project?

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caused by hydraulic pressure of the drillstem when going into the hole, are reduced.

• Pump-pressure surges in the annulus during routine drilling are reduced.

• Low water loss results with the proper compounding of the high-viscosity pure Driscose muds, although this might not necessarily be the aim. The relatively low water loss, obtained with few solids, is a desirable characteristic, because it reduces the deposition of filter cake on the well bore.

• The requirement for dispersants is low because Driscose muds contain few solids.

Also, these muds will more readily tolerate common contaminants such as cement, anhydrite, and salt, say company engineers.

Drilling Specialties cites results of field tests to back up its claims (charts). Data was compiled on many wells drilled in the Permian Basin and other areas over the past few years.

The data proves, the company says, that an operator who used pure Driscose in a low-solids-emulsion mud, can expect sizable savings in drilling time.

In field tests, the company says, low-solids, high-viscosity pure Driscose muds permitted one rig to drill faster than another, or faster in one well than it did in another.

"Improved drilling practices and improved mud practices go hand in hand," the engineers say. "Increased pump horsepower is of no aid in increasing penetration rates if it is expended in moving the mud to the bit.

"It is doubtful if we could run the oversized drill collars or realize any benefits from jet bits if we used the viscous muds containing the high concentration of solids that were employed only a few years ago."

A low-solids mud may be "tailor-made" at the desired depth to meet viscosity, water-loss, and weight demands of a given well, says the company.

It has been found in the field, the company engineers report, that, using the water available, approximately 25 lb. per bbl. of bentonite is required to produce a mud with an apparent viscosity of 16 centipoises. The same result can be accomplished by using ¾ lb. per bbl. of special high-viscosity pure Driscose, and 5 lb. per bbl. of bentonite, a reduction in solids of 19.25 lb. per bbl.

The requirements of each individual well must be considered, says the company, but some general rules will apply to most low-density mud systems.

If you start with water, and add ¾ lb. of pure Driscose per bbl., 5 lb. per bbl. of bentonite, and 6% to 8% of diesel oil or a light crude, a mud with a viscosity of approximately 16 centipoises is obtained. More or less bentonite may be added depending on the desired viscosity and the quality of the makeup water.

It is desirable, the company feels, to have the concentration of native solids as low as possible by jetting and adding water along with the oil and high-viscosity Driscose. A solids-settling-type surfactant emulsifier may be used, particularly in lower viscosity ranges, as an aid to emulsifying the oil and settling the drilled solids.

Maintenance of low-solids muds consists of adding sufficient water to hold the weight and drilled solids to the desired level, maintaining the oil content, and adding Driscose. Driscose can be added either by itself, or in ratios of one 50-lb. sack of Driscose to four sacks of bentonite, or up to one sack of Driscose to eight sacks of bentonite, as needed, to maintain desired viscosity and water loss. A light chemical treatment is sometimes necessary in the higher viscosity ranges to maintain low gel strengths.

Various mechanical means are sometimes used to help settle or discard unwanted solids. Engineers claim the use of a centrifuge or cyclone is very effective, as is the practice of circulating through reserve pits to afford a larger settling area.

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Remember this. Here is a pumping unit that will SAVE YOU MONEY—Cost You Less than any competitive unit. Less for Transportation; Less for Installation; Less for Maintenance; Increase Life of Sucker Rods, Bottom Hole Pump, and in many instances increase production.
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Save thousands of dollars per well in offshore drilling

with LETOURNEAU mobile platforms

LeTourneau Mobile Platforms are rewriting the cost figures in offshore oil drilling. These completely self-contained units, designed to do the complete job from spudding in to setting production platforms, contribute impressive savings in offshore operations.

The unique tripod design with its electro-mechanical raising and lowering mechanism permits location changes to be made quickly – in a matter of hours instead of days. And since each spud is independently operated, the platform level can be controlled at the flick of a switch in the event scouring or some other unexpected action occurs.

Other safety features are inherent in the design of LeTourneau Platforms. They have more than ample stability when floating and, because of the open-truss spuds, are able to withstand severe weather and wave conditions when elevated. The hull design also permits the units to be towed safely and easily.

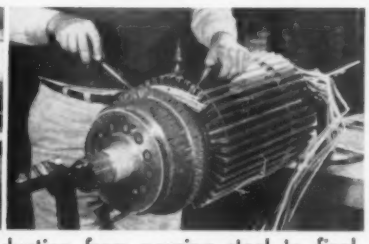
The derrick can be shifted both longitudinally and laterally so that more than one hole can be drilled from any location – another cost saving feature. The derrick can also be transferred onto a permanent platform if required.

Whether you're drilling in the Gulf of Mexico, the Persian Gulf, off the coast of Venezuela or any other area, a LeTourneau Mobile Offshore Platform can be custom designed to your particular needs. Let our engineers show you how we can save you thousands of dollars per well. Write or call today.

R. G. LETOURNEAU INC

MARINE PRODUCTS DIVISION

2859 South McArthur Longview, Texas

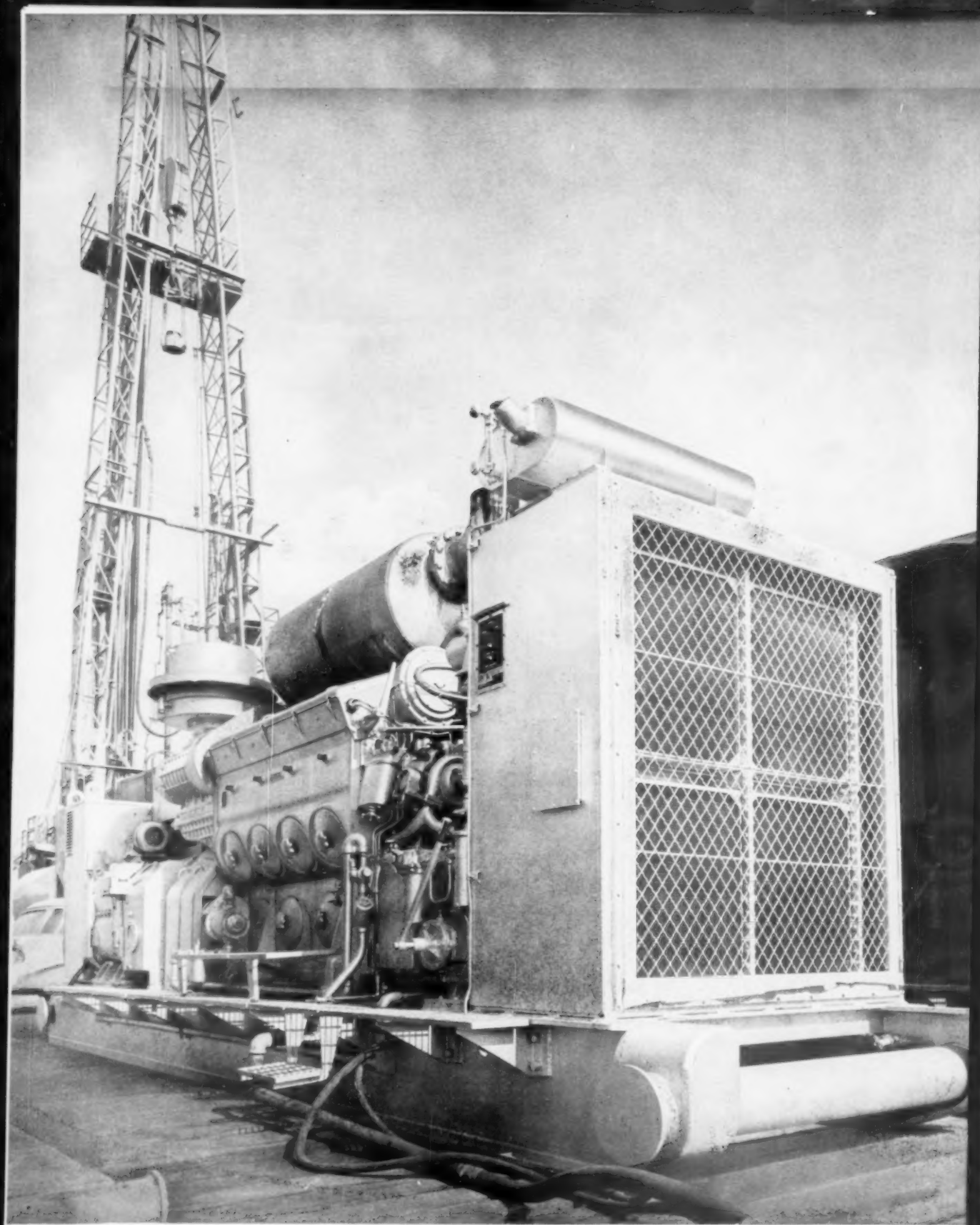


LeTourneau handles the entire production from pouring steel to final rigging. Photos show steel mill operation and electric motor manufacturing in the Longview plant.

Write for Brochure

Write for brochure on the latest LeTourneau Mobile Platform to be placed in service—complete description and photographs.

M-106



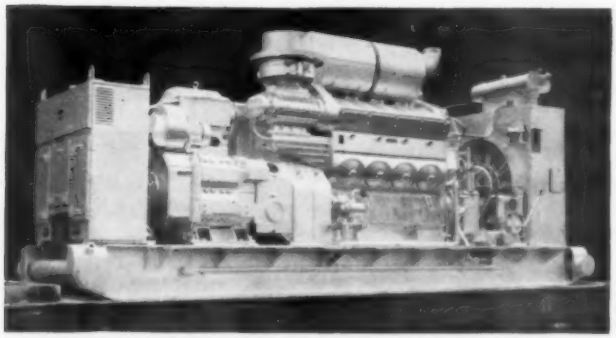
In operation on Sun Oil Company's Rig 15 at Rayne, La. is Electro-Motive's new drilling power unit, the SR-10. Main features include increased engine hp, increased generator and drive motor capacity, lighter weight, integral AC generator, simplified maintenance and load regulator control.

Announcing
a significant advancement in
deep well drilling power

New Electro-Motive SR-10 Power Unit

In 1955, Electro-Motive introduced the first fully integrated Diesel-electric power system for oilwell drilling. Success of these units is demonstrated by the fact that Electro-Motive Power is widely used by drilling companies throughout the Gulf Coast area.

Now, Electro-Motive offers another first and significant contribution to the oil industry's increasing need to drill deeper, faster and more economically — the first standardized, completely self-sufficient Diesel-electric power system. These are its features:



The SR-10 is a refinement of Electro-Motive's original plan to build a *complete* and integrated Diesel-electric system designed and built to work as a unit with one manufacturing responsibility.

For detailed specifications on the new SR-10 unit, contact your Electro-Motive representative in any of the cities listed below.

INDEPENDENT AC SUPPLY

A new integral AC generator (100-KW) makes the SR-10 completely independent of outside supply for its own AC needs—blowers, exciters, control equipment.

INCREASED POWER

Engine horsepower has been increased to 1000. New D49-G generators produce up to 640-KW each (2 per engine). New D49-M drive motors deliver up to 800 horsepower.

GREATER POWER UTILIZATION

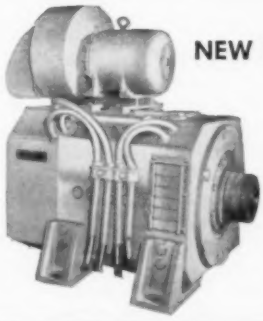
New load regulator provides load balance between units. Thus, if power requirements exceed that available on one unit, the load regulator automatically loads a second unit to satisfy drilling demands.

REDUCED MAINTENANCE

New improved motor control cabinet is simpler and more efficient. Its new design combines with many other improvements, both electrical and mechanical, to appreciably reduce overall maintenance time and expense.

LIGHTER WEIGHT

A new speed-increasing transmission between the engine and generators and other changes have cut the weight of the air cooled unit by more than 2000 pounds.



NEW D49-M DRIVE MOTOR

Improvements in design and materials of both the new motor and generator have appreciably increased horsepower and provided for better moisture protection. Motors and generators are identical except for field windings, a factor that facilitates service and reduces costs.

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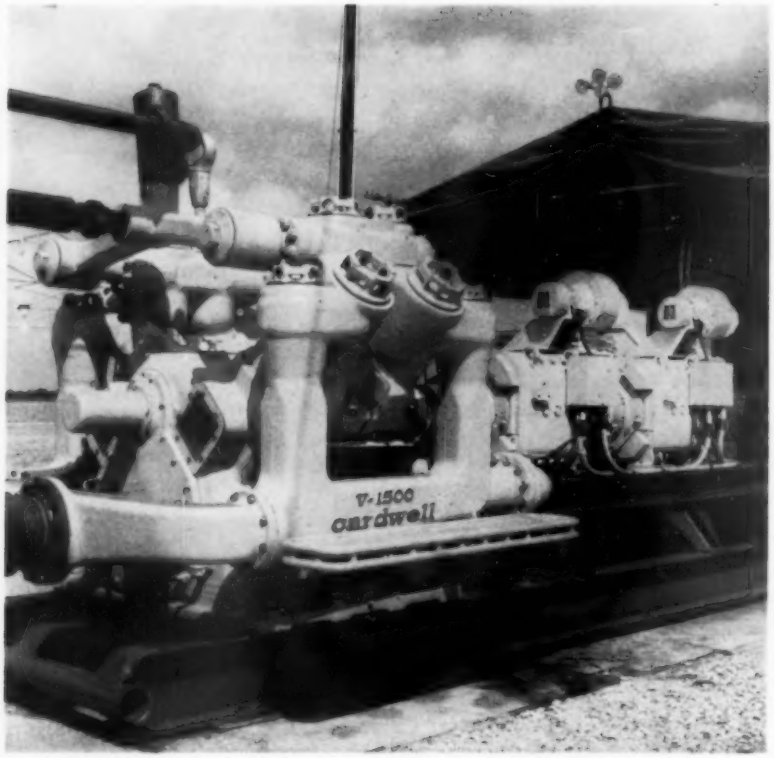
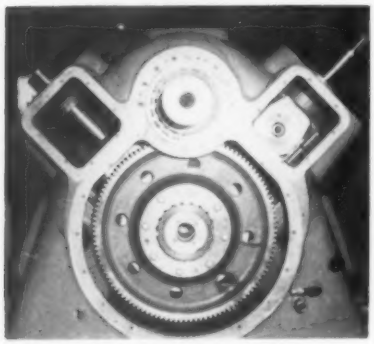


CARDWELL'S V-1500 MUD PUMP is powered by two Alco-GE electric motors in tandem. The generating plant can be seen in the background. Pump is skid-mounted.

FRAME of the V-1500 is one-piece cast steel. Note internal ribbing.



POWER END shows main drive gear, assembled on two-piece crankshaft.

Powerful Mud Pump Is Light, Compact

A radically new 1,500-hp. high-pressure, high-volume mud pump, weighing only about one-third as much as any other pump in the large-horsepower class, has been introduced by Cardwell Mfg. Co., of Wichita, Kan.

The pump was unveiled at a press conference last week in Houston.

Here are some of the highlights:

- Horsepower: 1,500 input.
- Weight ratio: 15⅓ lb. per hp.
- Speed: normal is 260 strokes per minute.
- Volumes and pressures: up to 1,114 gal. per minute under 3,500 psi.
- Discharge flow: Four cylinders reduce flow variations.
- Plungers are available in four sizes—6 in., 5½ in., 5 in., and 4½ in.
- Two-piece crankshaft permits placing shaft support bearings on 13-in. centers.
- Plunger-packing is installed as one unit with fluid stuffing box, permitting replacement with pre-assembled packing units.

Cardwell says that more than three months of testing at John W. Mecom's Hitchcock (Tex.) base have turned up no need for major revisions of design, and that the pump will be put on the market virtually as is.

Target date for production is the first quarter of 1958.

The pilot model will be put on a well near the Hitchcock base within the next 30 to 60 days. After that, it will go on either an offshore well or a West Texas deep well.

Testing has convinced Cardwell that the pump is operating at a rate of from 95% to 97% efficiency—a considerably higher rating than the 85% on which the company's own preliminary operating efficiency table was based.

The pump will sell for a higher price than existing comparable pumps—on a weight basis—but for a comparable price on a horsepower basis.

Cardwell developed the new pump for high pressures and high volume first because that is the area in which, it felt, drilling contractors and operators most needed a reduction in size and weight.

But the company plans to produce, eventually, a full line of the new pump, in all sizes.

In addition to drilling, Cardwell hopes the pump will be useful in such operations as waterfloods, pumping coal slurry, pipelining, and well fracturing.

Cardwell's V-1500 mud pump weighs only 15⅓ lb. per input hp. The unit has an operating range of 3,500 psi. to 2,000 psi., with volumes of 626 to 1,114 gal. per minute.

The entire unit weighs 23,000 lb.

Although the pump may be operated at various speeds, the normal operating speed is 260 strokes per minute.

This high-speed operation permits direct coupling of electric motors, or the utilization of chain drives, at 1,500 hp.

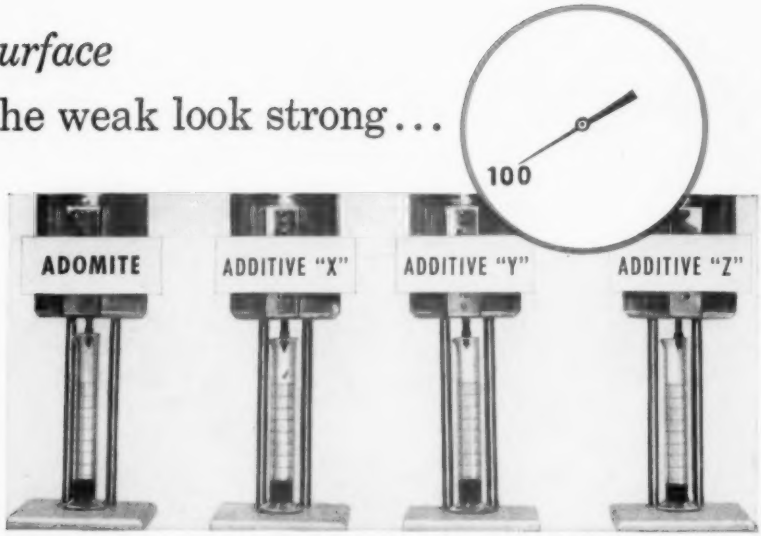
Four plunger sizes can be used on the V-1500. This permits selection of an operating range of pressures and volumes tailored to meet the changing conditions as the well is being drilled. The four sizes are 6 in., 5½ in., 5 in., and 4½ in.

The plunger design eliminates the pistons and fluid liners commonly associated with mud pumps.

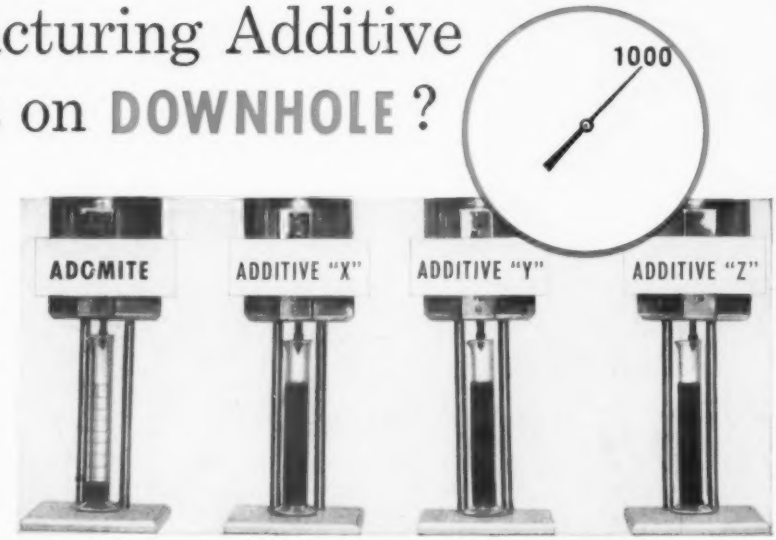
Plungers are readily accessible for

On the surface

even the weak look strong...



but which Fracturing Additive can you count on DOWNHOLE?



Some fluid loss control additives act impressively at surface conditions of low pressure and room temperature. But downhole, they let you down . . . with fluid loss becoming so high that their effectiveness is lost. That's what distinguishes Adomite from other fluid loss control additives. You can count on Adomite for *deep-down* effectiveness.

What's the secret of Adomite's *deep-down* effectiveness? Adomite, when mixed with oil, disintegrates into millions of tiny particles. These particles seal the face of the formation and keep the fracturing fluid from filtering in. Temporarily sealing the formation, Adomite particles do not plug it.

Where do other additives fail? These likewise contain sealing particles, but tend to soften or dissolve as temperatures increase. Consequently, fluid loss control is greatly reduced.

To be sure of least fluid loss, tell your service company to fracture with Adomite.

	Fluid Loss at Surface Conditions— 100 psi,* 75°F., cc/30 min.	Fluid Loss at Bottom Hole Conditions— 1000 psi, 150°F., cc/30 min.
Adomite plus crude oil	2.2	22.0
Additive X plus crude oil	37.8	Infinite
Additive Y plus crude oil	8.5	Infinite
Additive Z plus crude oil	13.0	295 (1 min., 50 sec.)

* Standard API Code 29 Test

fracture with

Adomite®

© 1957, Continental Oil Company

change by removing only the cylinder heads.

Discharge flow is unusually smooth because of the pump's four cylinders. The reduced flow variations are further minimized by the discharge frequency of the plungers on the high-speed pump. This factor, Cardwell officials say, will reduce hydraulic hammer and the resulting damage.

In addition to its light weight, the Cardwell pump takes up only 7 cu. ft. of space.

Actual dimensions of the V-1500 are: length, 7 ft., 1¼ in.; width, 8 ft., 1 in.; height, 6 ft., 7 in. The bore is 6 in., with an 8¾-in. stroke.

The frame is of cast, one-piece, all-steel construction, thus eliminating bolted connections. Fluid ends are tested to 8,000 psi.

Cardwell officials say the pump's small size will prove particularly valuable in marine drilling use, in that it will save expensive deck space on offshore barges and platforms.

The V-type construction also eliminates horizontal movement, which can present a problem in the construction and maintenance of offshore drilling units.

The Cardwell pump has a unique dual crankshaft design. And the plunger packing and the fluid stuffing box are installed as one unit.

The two crankshafts permit Cardwell to place the support bearings (two to a shaft) on 13-in. centers. This close spacing of the load-carrying bearings eliminates the possibility of deflection or distortion of the crankshaft from the powerful thrusts of the plungers.

When repacking is required, the removable unit is repacked at the work bench. This permits operators to have pre-assembled packing units ready for immediate replacement, cutting time loss. It is not necessary to remove the plunger to repack the pump.

Another feature of the packing arrangement is the pressure lubrication, with its closed circulating system. This system, in combination with the packing design, permits positive lubrication of all the packing rings, which results in a longer life for the units.

Cardwell says its design also permits handling hotter drilling fluids without burning out the packing. This would be of importance to deep drilling, where hot mud often presents such problems.

Cardwell recruited engineering help from the aircraft industry to aid its own staff in developing the new lightweight mud pump.

J. T. Tucker, Cardwell's general manager of sales, says:

"For many years the oil well drilling industry has had need for a high-pressure, high-volume, lightweight mud pump.

"Jet bits and big-hole drilling practices have created a demand for mud circulating rates which must be met to get maximum efficiency from today's improved tools.

"We recognized that the aircraft industry has been consistently meeting the problem of using high horsepower in conjunction with a lightweight factor. So we turned to this industry for engineering talent to be used with our own staff of experienced oil country engineers to develop the V-1500 mud pump."

What's New / IN EXPLORATION, DRILLING, PRODUCTION

Gulf Leasing at Halt; California Six Months Off

A federal official says the prospect for additional leasing in the Gulf of Mexico before final boundary settlement appears remote.

Luther T. Hoffman, head of the Bureau of Land Management, says the bureau has received no nominations for additional leasing, although this could be accomplished in Zones 3 and 4 under the terms of the interim agreement between the U. S. and Louisiana, signed last Oct. 12.

"There has been some conversation about it, but apparently no company wants to go on record as having asked for additional leasing in the offshore areas," Hoffman says.

Leasing of California tidelands will probably be resumed early next year.

The State Lands Commission has voted to begin work leading to possible offering for lease of parcels that were offered, then withdrawn, last winter. Six months probably will be required to process the parcels again before they are offered for lease. They total 27,035 acres, off Santa Barbara County.

•

Standard Forms Proposed

Final drafts for suggested reporting forms for oil regulatory agencies have been approved by an Interstate Oil Compact Commission subcommittee, meeting in Dallas.

The committee will now print the suggested forms for presentation to IOCC's regulatory practices committee at the annual Compact meeting, in Tulsa in December.

Lawrence Alley, assistant executive secretary of IOCC, says approval of standard forms by all oil states would simplify communication between the industry and control agencies.

•

Properties Change Hands

Bayview Oil Corp., Dallas, has announced absorption of three producing companies into its corporate setup.

A. Harvey Arant, Bayview executive vice-president, says the acquisition was achieved through issuance of Bayview common stock to New Bristol Oils, Ltd., a Canadian concern, in exchange for shares of Bristol Petroleum Co., Trans-American Oil Co. of Texas, and Topco Oil Co.

Douglas Oil Co. of California has acquired 98.8% of the common stock of Apex Petroleum Corp., Ltd. Douglas will operate the company as a subsidiary for now, says W. G. Kreiger, company president. The acquisition more than doubles Douglas' net proved reserves.

•

A Map for Laughs

An amusing map, called "The Oilman's Guide to Louisiana," has been published by Hardin & Ferguson, insurance brokers, of New Orleans.

A note in one corner of the map states: "In the interest of furthering public appreciation of the oil industry in the deep south, we present this guide to the fabulous oil country of Louisiana and surrounding territories (Texas, Mississippi, and Houston)."

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(*Continued on next page*)

(Continued from preceding page)

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You can also get more useful product information at a National Store. Maintenance instructions, charts of equipment ratings and other helpful bulletins are available. You'll find technical descriptive bulletins on drilling and production equipment and accessories.

Finally, you can see for yourself *new* products and improvements in old ones when you stop at a National Store. This is a big advantage you gain by personally visiting the store. You get a first hand picture of what new equipment or methods may mean in improving your operations.

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Below, a Spang inspector uses a master gauge to check thread accuracy on Extreme Line Casing at National's Ambridge, Pa., plant —one of the nation's largest plants for the exclusive production of oil field tubular goods.

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When the chips are down and there's likely to be trouble, most operators insist on SPANG Extreme Line Casing. When well conditions dictate that only the finest casing can be used, SPANG Extreme Line again gets the nod. Naturally, a long history of exceptional performance in every type of well has built such a reputation for this SPANG product.

Two major ingredients are responsible: The SPANG Extreme Line Casing Joint *and* the extremely accurate manufacturing processes used to produce this casing. The design of the joint means that it is easy to run and re-run repeatedly—it is 100% leak-resistant and has high joint strength—it is streamlined for maximum running efficiency and clearance—it has a minimum number of threaded connections.

The special steps taken to produce this casing mean it will give you the high quality performance required. From ingot steel to barge or gondola car, the making of Extreme Line casing is checked many times, many ways. Countless lab tests and many inspections (including the new Magnaglo process in grade P-110) are used to assure its high quality.

Remember these important ingredients when you consider the requirements for your next well. Talk it over with the people who have *specialized* in high quality oil field tubular goods for over 40 years—National Supply's SPANG Division and its representatives in your area.

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NATIONAL BLUE OIL FIELD MACHINERY AND EQUIPMENT
SPANG STEEL PIPE AND ELECTRICAL CONDUIT

no other map is a drawing of the oilman's limits of the Gulf of Mexico. There is a 3-mile limit, a 10-league limit, and a National League limit. Farther out, extending all the way across the map, is a line showing the Houston city limits.

•

The first of 16 new barges will go into service for Baroid Division, National Lead Co., next month, as part of the company's program to meet increased drilling fluid needs offshore. Company officials say its barge, Mr. George, has worked out satisfactorily, but that more vessels are needed to haul mud.

The new barges will measure 110 ft. long, 30 ft. wide, and 7 ft. deep. Their capacity will be 400 tons.

•

Standard Oil Co. of California is operator of the newly approved Lookout Point unit in Emery County, Utah. The block contains 18,991 acres, of which all but 2,500 acres is federal land. Standard is drilling below 4,700 ft. at the first test on the unit.

•

The Bureau of Economic Geology at the University of Texas has completed a book titled "Occurrence of Oil & Gas in West Texas."

The book contains a complete summary of conditions in 112 West Texas oil fields. The volume is a joint effort of the University of Texas and the West Texas Geological Society.

Copies of the book, at $10 each, can be obtained from the Bureau of Economic Geology, University Station, Box 8022, Austin 12, Tex.

•

The Mister K drilling barge, which overturned in the Gulf of Mexico last April, has been towed to a scrap company in New Orleans.

Tugs pulled the barge, still overturned, from the Gulf. Officials of J. R. McDermott Co. say a shift of 17,000 ft. of drill pipe may have caused the capsizing.

•

The Navajo tribe has announced a four-part sale of leases in San Juan County, Utah, and Apache County, Ariz.

The offering totals approximately 370,000 acres, on a one-eighth royalty basis. The tribe will also offer tracts in the vicinity of the Aneth pool, Utah. This offering has been broken into small tracts to avoid controversy as to the ownership of the bed of the San Juan River, which resulted in withdrawal of lands during sales in 1956.

Opening of bids has been scheduled for Dec. 10, Jan. 15, Feb. 11, and Mar. 19.

•

The Texas Railroad Commission has granted Shell Oil Co. a six-month extension of its testing period on automatic custody transfer lease equipment in a Texas field.

Shell will have a six-month extension to test ACT in the Wasson field, Gaines County, West Texas.

•

The annual meeting of the Texas Mid-Continent Oil & Gas Assn. will be held Oct. 1-2, in Ft. Worth.

Speakers at the meeting will include Gage Lund, vice-president and director of Standard Oil Co. of California, and A. L. Solliday, executive vice-president of Pan American Petroleum Corp.

•

The U.S. Geological Survey has approved unitization of Colorado's Rangely field, as expected (PW—Aug.30'57,p19).

•

Drilling Highlights

Utah—Standard Oil Co. of California No. 1 Johnson Creek Unit, section 33-35s-22e, San Juan County, has recovered oil in the Upper Paradox formation in a new area of the Paradox Basin, about 20 mi. northwest of Aneth. The wildcat recovered 60 ft. of gas-cut drilling fluid; 270 ft. of very gassy, oil-cut mud-oil emulsion; 90 ft. of watery oil; 266 ft. of oily salt water, and 30 ft. of 44.3-gravity oil on 5-hour test at 6,074-114 ft.

North Dakota—Petroleum Corp. of America and Tom Jordan No. 1 Jorgens, section 28-162n-91w, Burke County, recovered 420 ft. of oil, gas, and mud emulsion on drillstem test of the Madison (Mississippian) at 6,247-77 ft. Test in Nesson pay at 6,279-90 ft. recovered 60 ft. of oil- and gas-cut mud, and 120 ft. of oil, gas, and mud emulsion. The test is 3 mi. southeast of Lignite field.

In Divide County, most northwesterly county in the state, Spartan Drilling Co. No. 1 Clara Ecklund, section 9-162n-95w, recovered 420 ft of oil on drillstem test of the Nesson (Mississippian) at 6,733-54 ft. The test is 2 mi. west of Noonan field, only field in the county.

New Mexico—Atlantic Refining Co. No. 1-AE State, section 36-8s-36e, Roosevelt County, was completed as a Pennsylvanian discovery for 600 b/d through ¼-in. choke and perforations at 6,650-62 ft. The well is 3 mi. north of the Allison (Pennsylvanian) field.

Oklahoma—Gulf Oil Corp. No. 1 Stover, section 16-27n-9w, Alfalfa County wildcat 8 mi. northeast of production, perforated Cherokee (Pennsylvanian) sand at 5,234-63 ft. and fractured to flow out load and 77 bbl. of oil in 24 hours through ¼-in. choke.

West Texas—Skelly Oil Co. No. 1-A Orson, section 33, block 3, PSL survey, Andrews County, flowed 293 b/d through 1-in. choke from 10,418-32 ft. and 10,452-62 ft. The discovery is 3½ mi. southeast of the Wemac field area.

In Tom Green County, Honolulu Oil Corp. No. 1 Washington County School Land, league 105, Washington CSL survey, established Crosscut (Pennsylvanian) sand pay at 4,930-44 ft. The discovery flowed 231.8 b/d of 35.3-gravity oil through 3/16-in. choke. Location is 4 mi. northwest of the Pecan Station field.

East Texas—Sam Sklar No. 1 McReynolds Estate, Hicks Milsap survey, Cass County, flowed 110 b/d of 48-gravity oil through 12/64-in. choke and perforations at 6,111-28 ft. In the Hill sand zone of the Rodessa. The discovery is 2 mi. northwest of the Kildare field.

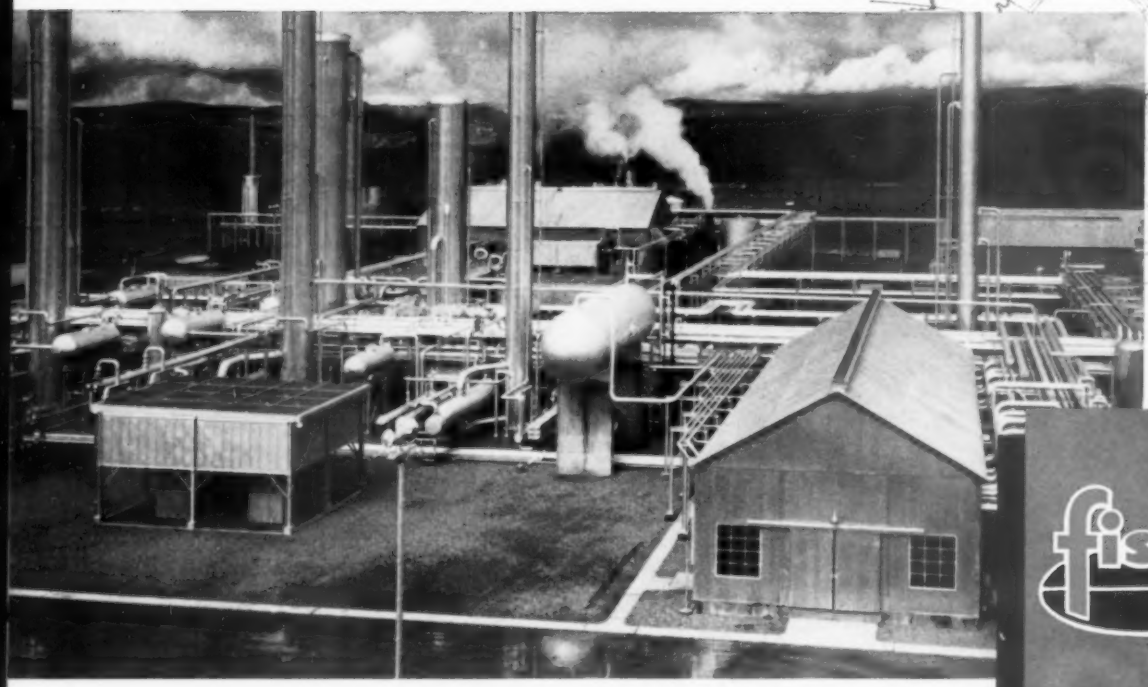
Nebraska—McDaniel Drilling Co. No. 1 Brown, section 11-18n-54w, Banner County, recovered 340 ft. of oil, 100 ft. of oil-cut mud, and an estimated 100,000 cu. ft. of gas daily on 2-hour drillstem test in the J sand at 5,391-415 ft. The prospect is 1½ mi. northeast of Garfield and Pasternak No. 1 Brown, completed on pump for 8 b/d from the J sand in 1955.

South Louisiana—Superior Oil Co. No. 1 State Lease 3052, in the White Lake area of Vermillon Parish, will be dually completed. Initial recovery from the lower sand, at 14,267-73 ft., was 72 b/d of distillate and 4,915,000 cu. ft. of gas daily through 18/64-in. choke.

Perforations for the second zone will be somewhere between 12,432-13,407 ft., but operator hasn't disclosed which of the sand sections will be produced.

This gasoline plant operates efficiently despite

varying loads



The San Juan gasoline plant of the Pacific Northwest Pipeline Corporation is big! It was designed to handle 300 million cubic feet of gas per day and recover 340,000 gallons of liquids. But efficient operation over a wide range of loads was necessary.

Since it was placed on stream in October, 1956, the San Juan plant has operated efficiently and dependably at loads ranging from 20 per cent to nearly 100 per cent of capacity. This is an unusual record for a plant of this size.

Furthermore, because of a rigid timetable imposed by pipeline commitments, the plant was constructed in record time despite many unusual problems posed by terrain, weather and transportation.

Because of transportation limitations, the 90-inch by 56-foot absorbers had to be shipped to the site in sections. There, welding assembly was completed in the field. The units were then inspected and stress-relieved.

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Petroleum Will Power New Weapons

The exotic fuels may have some applications, but look for hydrocarbon-based fuels to carry the load in sending future missiles into the wild blue yonder.

Petroleum fuels will continue to power modern air weapons—despite the advance raves being given the exotic chemical "zip" fuels (PW—Apr.12'57,p65).

That's the opinion of Shell Oil Co.'s D. N. Harris and W. S. Little, as given in a paper last week at the Baltimore meeting of the American Institute of Chemical Engineers.

Comparative costs are a main consideration.

Harris and Little stressed only the technological considerations of supplying fuel for the rockets and missiles of the future. But the "dollar factor" is equally important. And the cost of the exotic fuels now figures to be so much higher than that of petroleum-based fuels that the military is expected to use the latter generally.

Exceptions: (1) In specialized cases, where superior characteristics of a chemical fuel would be important enough to justify the higher cost; or (2) in a national emergency, when much higher military budgets could absorb the cost of widespread use of "zip" fuels.

Saturated hydrocarbons are now expected to provide the lion's share of the power needed by the high-flying missiles of today and tomorrow, Harris and Little said.

The advent of new oxidizers (sources of supplementary oxygen, which becomes necessary for burning at elevated altitudes) for use with saturated-hydrocarbon fuels will insure wide use of such fuels in missile power plants.

The use of unsaturated hydrocarbons in missiles fuels will be small they feel, because of their less-favorable burning characteristics in missile engines.

The virtual assurance that petroleum-based fuels will power such missiles brings with it problems for refiners. For instance, they have to cope with the specialized needs of each weapon developed.

The ideal, as far as missile designers are concerned, would be a special fuel for each weapon. Refiners are quick to point out that this is clearly impractical—the cost of refining and storing a great number of different military fuels would make it a losing proposition.

On the other hand, a single all-purpose high-energy fuel is out of the question from the military standpoint, because of the specialized nature of the missiles. The answer will probably be somewhere between several basic types of missile fuels.

To add to the confusion, the recent cutback in military spending is likely to have some effect on missiles. Until this effect can be measured, decisions on the number and types of missile fuels can't be made.

Nevertheless efforts for a liaison on missile fuels between refiners and the government continue.

The American Society of Testing Materials, oil industry representatives, and the military are currently meeting to work out the details on tomorrow's missile-fuel specifications.

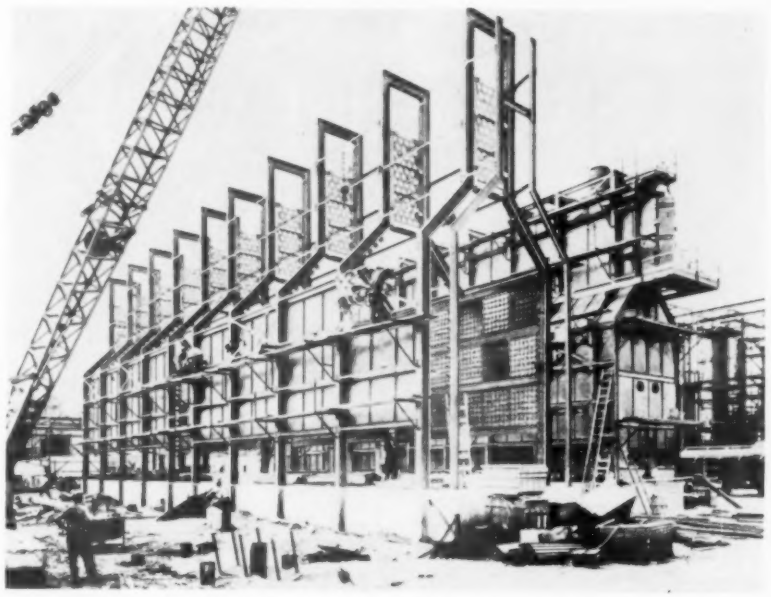
Coke information is also likely to be a serious problem in designing missile fuels.

Harris and Little point out that missile fuels have to do their job under severe conditions. Flying at twice the speed of sound at high altitudes, for instance, creates great temperature extremes. Outside in the upper atmosphere, it may be −50F, while in the engine the temperature may be as high as 1,000F.

In conditions such as these, many fuels have a tendency to coke, and to leave deposits that seriously impede proper burning.

These question marks notwithstanding, it seems likely that refiners will be able to supply the missile fuels without significant change in methods and equipment.

Although the exact specifications for future missile fuels won't be available for some time, refiners do have a general idea of what the missiles will require. And present refining methods, according to Harris and Little, should be able to handle the job.



Biggest Platformer Heaters

These are the world's largest heaters ever designed for a Platforming unit, and they're being built by Procon, Inc., at Gulf Oil Corp.'s Philadelphia refinery. Each heater will pretreat feed for a 26,000 b/d Platformer now being built under license from Universal Oil Products Co. The Platformers will go on stream early next year. Use of a single heater for each Platformer is left to offer best use of available space, and maximum construction and piping economy.

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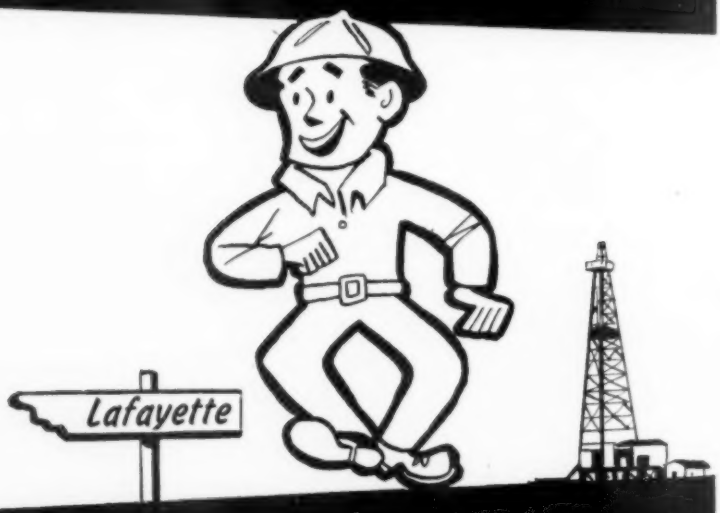

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New: Acetylene Feed Variety

A new petrochemical acetylene process, developed by Belgium's Societe Belge de L'Azote, may prove an important aid to refiners who find themselves long on certain hydrocarbons during the year.

According to the October issue of Chemical Engineering, a McGraw-Hill publication, SBA has added its own refinements to the established partial-oxidation acetylene process. SBA has licensed several U.S. firms to market its acetylene-from-hydrocarbons flowsheet in this country.

The main feature of the new acetylene process is its ability to use a wide range of hydrocarbons as feed stock. Anything from methane up through heavy oils can be converted to acetylene with proper modification of the burner and the purifying system. Present partial-oxidation processes are restricted to methane feed stock.

Refiners may well find themselves supplying a wide range of hydrocarbons to acetylene makers if the SBA scheme catches on in the U.S. Since the process can utilize liquid feeds as well as methane, it could mean a potential market for out-of-season hydrocarbons. Butane, for instance, now a refiner's headache, could become a money-maker.

Refiners generally shouldn't expect to build plants to convert hydrocarbon scraps to acetylene, however. Petrochemical acetylene is strictly a large-scale operation. Acetylene economics require that hydrocarbon acetylene be produced in quantities of at least 6,000 tons per year in order to compete with carbide acetylene. And an installation of this size is out of the byproducts class.

Acetylene demand and production are in for continued expansion. Growing acceptance of such acetylene-based chemicals as neoprene, vinyl chloride and acetate, and acrylonitrile insures an increasing demand for acetylene. A recent estimate forecasts a 77% jump in consumption of acetylene for chemical syntheses in the next five years. Trends indicate that a good part of this growth will be supplied by hydrocarbon acetylene.

SBA's developments are especially timely because of the growing popularity of the hydrocarbon route to acetylene. Three companies—Monsanto Chemical Co., Union Carbide Chemicals Co., and American Cyanamid Co.—are already making acet-

ylene from methane. And a fourth, Rohm & Haas Co., is now building a petrochemical acetylene plant in Houston, Tex.

The general process method involves partial oxidation of the hydrocarbon to acetylene by mixing with oxygen in a special burner.

Extraction and purifying steps recover acetylene from the reaction gases.

SBA's innovations consist of a new burner design and a liquid ammonia solvent for acetylene extraction.

These developments, the company claims, give a process that is cheaper to install and operate than existing processes.

What's New / IN REFINING

Continental Oil Co.'s Ponca City (Okla.) radiation laboratory is ready to operate.

Nuclear radiation for the studies on petroleum and petrochemical products and processes is supplied by spent reactor fuel elements. The 10-lb. cylinders are shipped from the Atomic Energy Commission's Arco (Idaho) atomic reactors.

Work in the new laboratory will include both the effects of gamma radiation (from the fuel elements) and radiotracer studies.

•

A new refinery for New Jersey is in the offing. Hess Trading & Transport, Inc., has received a building permit for an $8-million refinery on a 100-acre waterfront site at Port Reading, N. J., in the New York metropolitan area.

•

Western Europe's petrochemicals production will exceed 1-million tons a year by about 1959, and will continue to rise by 1½-million tons a year for the next five years.

These are forecasts given by Dr. Colin Haley, of Esso Research, Ltd., Abingdon, England, to the 30th International Congress of Industrial Chemistry, at Athens, Greece.

Improved living standards have expanded European petrochemical plastics markets the fastest, with polyethylene in the lead. Other important factors in European petrochemicals growth are increasing manufacture of synthetic rubber and detergents.

•

Shell Petroleum Co. Ltd.'s Stanlow (England) refinery has a new type of boiler—the first of its kind in the United Kingdom.

Designed by Shell technologists, the new unit uses cat cracker regeneration gases as fuel to generate steam. It's estimated that the new unit will save between 30,000 and 40,000 tons a year of heavy fuel.

•

The Latonia (Ky.) refinery of Standard Oil Co. (Ohio) will be shut down on Nov. 3 for a two-month clean-up, inspection, and training period, prior to a shift in emphasis to asphalt manufacture (PW—Sep.20'57,p46).

The plant force will be reduced by about 75, with the company offering to transfer those interested to its Toledo refinery. The company will make "every effort to get a job for everybody no longer needed at Latonia."

•

A five-year, $120-million research and development program is planned by United States Rubber Co. Spending will be at U. S. Rubber's new research center in Wayne, N. J., and at the company's laboratories at 22 locations in the U. S., Canada, and the Far East.

The company will continue its research—which has been very encouraging so far—on automobile tires of butyl and polyurethane rubbers. Its goal is a tire so safe that cars will not need spares when used at "turnpike speeds."

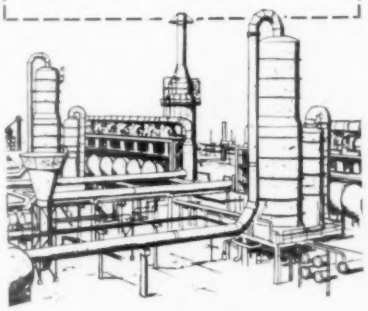
Other research goals are to develop materials intermediate in characteristics between rubber and metals, and to find uses of atomic energy for the rubber industry.

•

Standard Oil Co. (Ind.) says its over-all plans for petrochemical expansion will go ahead on schedule, despite its decision to close down the hydrocarbon synthesis plant at Brownsville, Tex., that has been operated by its subsidiary, Amoco Chemicals Corp. (PW—Sep.20'57,p46).

on stream in the United States

TWO NEW HOUDRY DEHYDRO UNITS



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The Houdry Dehydrogenation Process is the only commercial one-step process for transforming butane to butadiene or butene. Investigate it for maximum economy and flexibility. Write for information.

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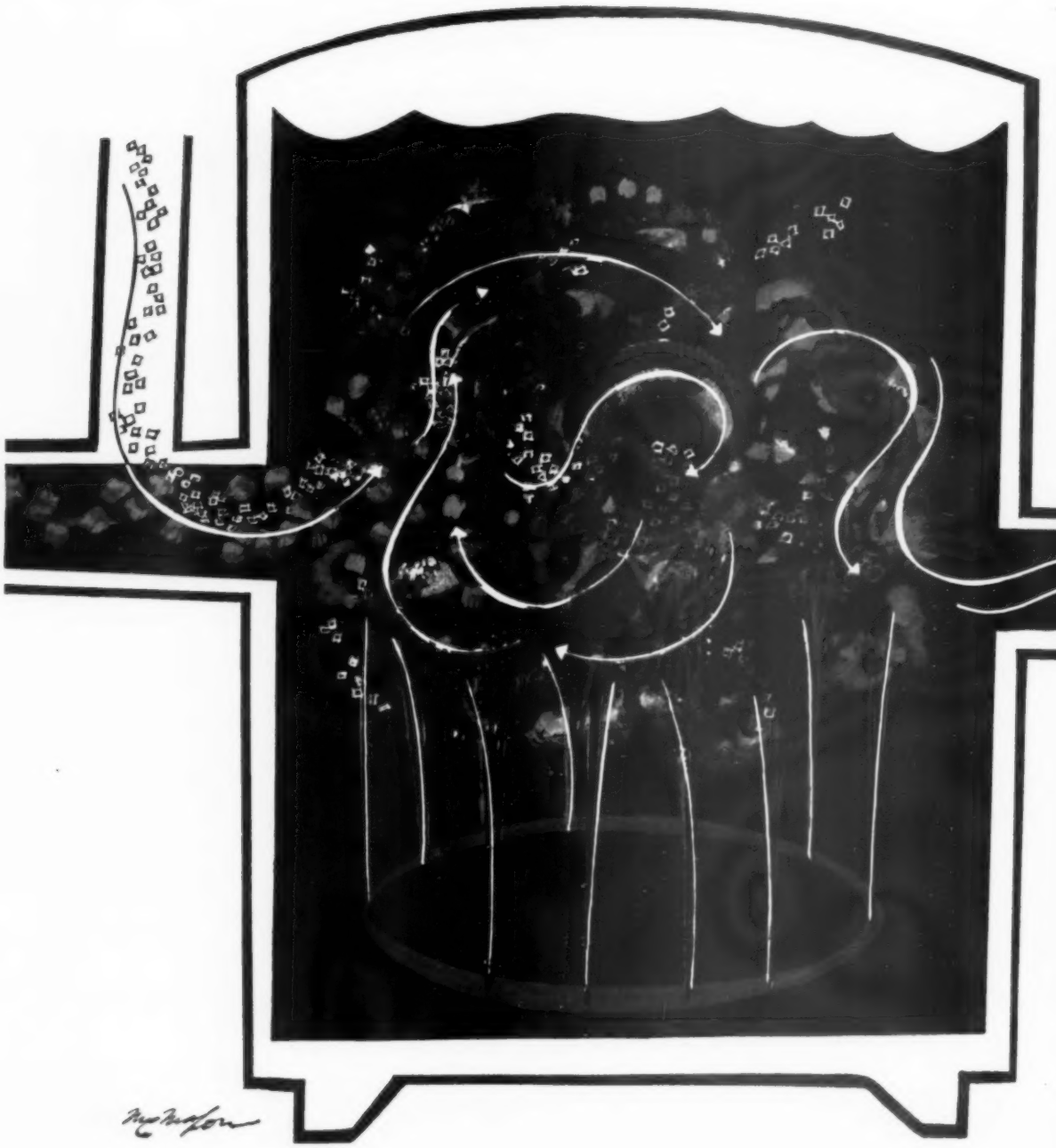

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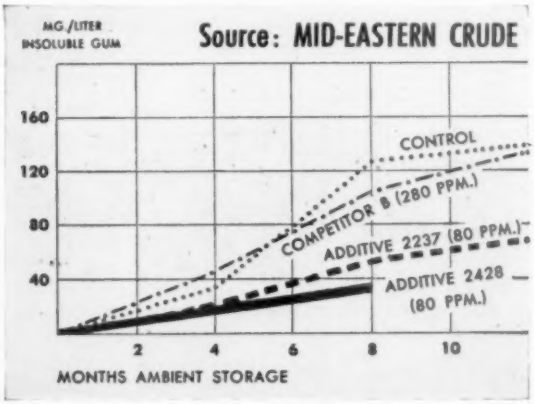
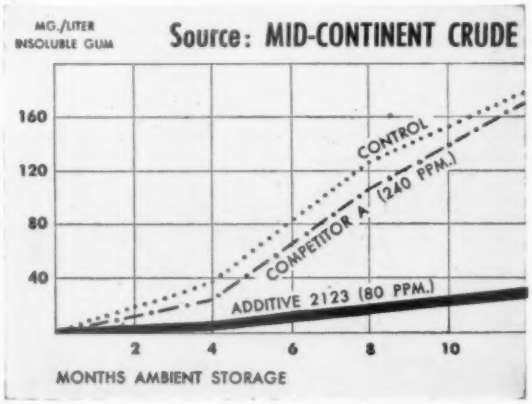
ARMOUR PRODUCTS EXCEL IN 12 MONTHS STORAGE TESTS

Four fuel oil stocks (West Texas, Mid-Continent, Venezuelan and Middle East types), have been subjected to 12 months ambient storage conditions using 41 potential additives. These 41 additives resulted from the screening of over 300 chemicals. Four Armour products (3 graphically shown below) were outstanding in their ability to inhibit and/or solubilize gum and stabilize against radical color change. In addition, most effective for West Texas crudes was Armour Additive #2528; for Venezuelan crudes, Additive #2237.





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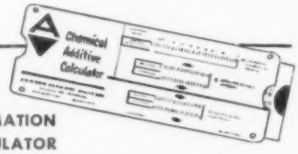

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Oil Nears Its 100th Big Computer—and

Before the year is over, oil companies may reach the 100 mark in U.S. installations of large and medium-size computers. The total now is 84, according to a Petroleum Week survey of companies active in electronics.

However, as shown in the tables below and on pages 46 and 48, the oil industry has really only begun gearing up for an electronics future of tremendous potential. From now on, oil men should start getting some return on their huge investments.

In the past 12 months, IBM alone has installed 37 IBM 650 computers and 6 of its "700 series" machines. And this pace is continuing.

Furthermore, the 38 "on order" computers listed by the oil companies represent a very conservative response. Excluded (from the table below) are machines for which letters of intent, but not firm orders, have been issued. Also, some of the oil companies, as well as manufacturers, are reluctant to talk about equipment orders and forward planning.

In addition to the core of 122 domestic machines, at least another dozen are on order or in use by oil firms outside the U.S., or by firms closely associated with oil companies.

Today's Computer Count in Oil

INSTALLED

Large computers	Number installed	Accounting use only	Scientific use only	Accounting and scientific use
IBM 705	7	1	—	6
IBM 704	1	—	1	—
Medium computers				
IBM 650	57	15	11	31
Burroughs Datatron	9	—	6	3
Bendix G-15	5	—	5	—
National Cash Register—102A	2	—	2	—
Elecom 120	2	—	2	—
Oil-company make*	1	—	1	—
Total installed	**84**	**16**	**28**	**40**

ON ORDER

Large computers	Number on order	Accounting use only	Scientific use only	Accounting and scientific use
IBM 709	2	—	1	1
IBM 705	5	1	—	4
IBM 704	4	—	3	1
Univac File Computer, Model I	3	—	—	3
Medium computers†				
IBM 650§	24	1	2	13
Total on order	**38**	**2**	**6**	**22**

*This is a confidential machine assembled in a major company's laboratory "with parts and materials from various sources."
†Other makers of medium computers have orders, but they have not been announced for competitive reasons.
§For eight IBM 650 computers on order, applications have not yet been decided.
Note: Table includes only installations and orders by oil companies and only those in the U.S.

—and Start of the Electronics Payout

Large or medium computers are tagged for oil-company use in Canada, Europe, Venezuela, and the Middle East. And machines have been installed or ordered by Plantation Pipe Line Co., Great Lakes Pipe Line Co., and Ethyl Corp., plus various refinery service firms and natural gas companies.

The list does not include additional hundreds of smaller—but highly capable—computers now being used by oil companies.

PETROLEUM WEEK's survey covers only hardware with high speed, high memory capacity, and high price. For example, IBM's rental for the medium-sized 650 machine ranges from $3,750 to $20,300 a month, depending on use of extra speed or memory capacity. The equivalent purchase-price range is $206,000 to $1,200,000.

The large IBM 705 rents for $27,200 to $65,000 a month, and sells for $1,475,000 to $3,500,000.

Because there is no clear dividing line between medium and small computers, and often disagreement over which is which, the survey uses the classifications reported by the oil companies.

Today, computer applications are fairly well balanced between ac-

Sample Programs of Active Companies

Company	Location of Computer	Type of Computer	Status	Application	Use A—Accounting S—Scientific
Shell Oil Co.	Denver	IBM 650	Installed	Production	A, S
	Los Angeles	IBM 650	Installed	Production	A, S
	Houston	IBM 650	Installed	Production research	S
	Houston	IBM 650	Installed	Refining research	S
	Wilmington, Cal.	IBM 650	Installed	Refining	A, S
	Wood River, Ill.	IBM 650	Installed	Refining	A, S
	Martinez, Cal.	IBM 650	Installed	Refining	A, S
	Norco, La.	IBM 650	Installed	Refining	A, S
	Midland, Tex.	Burroughs Datatron	Installed	Production	A, S
	Tulsa	Burroughs Datatron	On Order	Production	A, S
	Houston	IBM 650	On Order	Production	A, S
	Houston	IBM 650	On Order	Refining research	S
	Anacortes, Wash.	IBM 650	On Order	Refining	A, S
Shell Development Co.	Emeryville, Cal.	Burroughs Datatron	Installed	Research	S
	Emeryville	Bendix G-15	Installed	Research	S
	Houston	Underwood Elecom 120	Installed	Exploration & production research	S
	Emeryville	IBM 709	On Order	Research	S
Shell Chemical Corp.	Houston	IBM 650	Installed	Petrochemicals	A, S
	Torrance, Cal.	IBM 650	On Order	Petrochemicals	A, S
Esso Standard Oil Co.	Baton Rouge	IBM 705	Installed	Refining	A, S
	Linden, N. J.	IBM 705	Installed	Refining	A, S
	Baton Rouge	IBM 650	Installed	Refining	S
	Baton Rouge	IBM 650	Installed	Refining	S
	New York	IBM 705*	On Order	——	A, S
	Towson, Md.	IBM 705	On Order	Marketing	A
Humble Oil & Refining Co.	Houston	IBM 705	Installed	Production, home office	A
	Houston	Bendix G-15	Installed	Production	S
	Houston	Bendix G-15	Installed	Production	S
	Baytown, Tex.	IBM 650	Installed	Refining	S
	Baytown	IBM 650	Installed	Refining	A, S
	Baytown	IBM 705	On Order	Refining	A, S
	Houston	IBM 704	On Order	Production research	S
Esso Research & Eng. Co.	Linden, N. J.	IBM 650	Installed	Refining	S
	Linden	IBM 650	Installed	Refining	S
	Linden	IBM 650	Installed	Home office	A
	Baton Rouge	IBM 650	Installed	Refining	S
	Linden	IBM 704*	On Order	Refining, research	S
Carter Oil Co.	Tulsa	IBM 650	Installed	Production	S
	Tulsa	IBM 650	Installed	Home office	A
Standard Oil Co. (N. J.)	New York	IBM 650	On Order	Home office	A, S
Ohio Oil Co.	Findlay, Ohio	IBM 650	Installed	Home office	A, S
	Findlay	IBM 650	Installed	Home office	A, S
	Denver	Burroughs Datatron	Installed	Research	S
	Findlay	IBM 705	On Order	Home office	A, S
Phillips Petroleum Co.	Bartlesville	Burroughs Datatron	Installed	Home office	S
	Bartlesville	IBM 650	Installed	Home office	A
	Bartlesville	IBM 650	Installed	Home office	A
	Borger, Tex.	IBM 650	Installed	Production, refining, & research	A, S

*Will probably be eventually replaced by IBM 709.
Note: Computers in this table are included in summary table at left.

counting and scientific uses. Long-range, however, the oil electronics specialists tend to see a greater potential in scientific uses and operations research.

The 122 computers reported as installed or on order are divided among 37 different oil companies, counting affiliates and parent companies separately.

The state of Texas has the most oil installations, with 22. Next is Oklahoma, with 15, followed by California, with 10.

There is a wide range in company activity. One major has spent millions for electronics equipment and studies. Another has spent $1,000. One major has 75 people working full-time in computer work. Another has none.

Reflecting the fact that oil is really only "getting started" in this field is the fact that only half of the companies surveyed have a formal committee at the policy level to administer electronics activity.

About half feel that top and middle management are adequately informed on electronics. But so far, only a third of the companies have set up a formal electronics training program for managers at all levels.

The wide variety of "biggest problems," encountered by the oil com-

Management-Eye-View of Oil Electronics

(Replies by top electronics men in 37 oil companies.)

QUESTIONS	ANSWERS Yes	No	Not Sure
Does the company have a formal committee at the policy level to develop and administer electronics activity?	19	17	—
Does the company feel that top and middle management men are adequately informed on electronics?	21	9	7
Does the company have a formal program for training managers at all levels in how electronics will affect their work?	12	25	—
Do you feel it is probable that your company will always rent, rather than buy, large and medium-sized computers?	25	3	8
Do you think that over the years electronics will gradually centralize management functions to a greater degree than is true at present?	10	19	8
Is the company insisting on a projected economic payout for computers before ordering them (including long-range payout)?	22*	13*	—

*Several companies insist on a payout for some of their computers, but not all.

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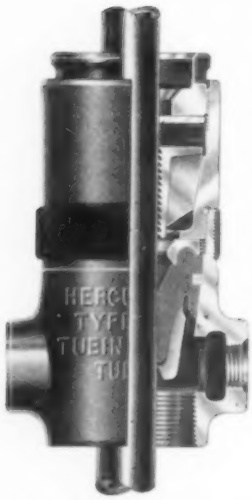

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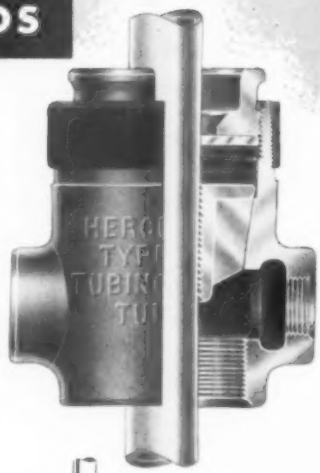

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panies underscores the difficulties in today's ground-breaking stage.

Of the 48 "mentions" of problems by oil computer specialists surveyed, exactly half, or 24, concerned recruiting, training, and working with people. A quarter of the mentions, or 13, dealt with preliminary data collection and with the initial programing of machine work.

To meet oil-company requests for greater computer speed, memory, versatility, and economy, the manufacturers are producing a steady flow of new and improved equipment. Samples:

- IBM has added more memory and input-output speed, plus tape-checking, to its 705 machine. It is building another large computer, the IBM 709. And it is giving maximum attention to hardware in the medium-scale field.
- Last week, the ElectroData Division of Burroughs Corp. announced an enlarged Datatron machine, the "220." This will be a medium computer with a full magnetic-core memory. First deliveries will be in mid-1958.
- Another enlarged medium-scale machine is now being built by National Cash Register Co., which is no longer in production with its NCR 102A.

The new NCR 304 is designed for "commercial" use, and may be used for scientific purposes. First delivery: early 1959.

What Electronics Chiefs Say About Present and Future

(Replies by top electronics men in 37 oil companies. Answers do not total 37, since all men did not answer all questions.)

QUESTION: What specific computer uses is the company stressing most, ranked in order of potential economic importance?

FIRST		SECOND		THIRD	
Use	No. of mentions	Use	No. of mentions	Use	No. of mentions
Accounting	6	Accounting	9	Accounting	8
Scientific computing	5	Production	4	Engineering	3
Refinery operations & planning	3	Research	4	Research	3
Operations research	3	Engineering	3	Scientific computing	2
Refinery simulation	2	Forecasting	2	Refining	2
Operations (general)	2	Data processing	2	Operations research	2
Scheduling	2	Production accounting	1	Geology, geophysics	1
Research & development	2	Refining	1	Economics	1
Operations analysis	1	Engineering data reduction	1	Marketing statistics	1
Geophysics	1	Management decisions	1	Data processing	1
Marketing sales accounting	1	Dispatching	1		
		Linear programing	1		

Note: Although some of these uses overlap, they are listed separately to pinpoint uses of potential importance.

QUESTION: How many company employees are now full-time in electronics work?

Each figure represents the reply of one oil company: 75, 50, 50, 40, 40, 40, 25, 22, 20, 20, 20, 16, 15, 15, 14, 13, 12, 12, 11, 10, 10, 10, 8, 7, 6, 6, 4, 4, 4, 3, 2, 2, 1, 0

QUESTION: How much money has the company invested in electronics equipment (of all kinds) so far?

Following amounts are a sampling of expenditures, rather than an accurate reflection of industry dollars spent, since some oil companies with the largest electronics investments did not reply to this question. Each figure represents the reply of one oil company. Figures are total expenditures to date, unless otherwise noted in parenthesis: $500,000 (a year); $565,000; $450,000; $300,000; $225,000; $215,000; $175,000; $160,000; $130,000; $100,000; $100,000; $75,000; $70,000; $4,100 (a month); $25,000; $10,000; $8,000

QUESTION: How much money has the company invested in electronics studies so far?

As with the previous question, amounts shown are a sampling, since some of the most active companies did not reply. Each figure represents the reply of one oil company: $500,000; $500,000; $250,000; $200,000; $200,000; $180,000; $150,000; $100,000; $75,000; $75,000; $50,000; $50,000; $30,000; $10,000; $5,000; $1,000

Note: There is no relationship in the order of figures that would allow a company-by-company comparison of the three lists above.

QUESTION: What are your biggest problems in electronics operations?

1. Getting and training qualified electronics manpower (16 mentions). Sample comment:

"Selection and development of competent operators and programers . . . training the staff to use the equipment . . . overcoming the shortage of qualified systems analysts . . . acquiring qualified manpower."

2. Winning companywide understanding and cooperation (8 mentions)

"Overcoming natural aversion to change . . . Education on what computers will and won't do . . . Time, and the ability of people to adapt."

3. Programing computer work (7 mentions)

"Writing the programs (terribly time-consuming) . . . Promoting standardization of programing . . . De-bugging and volume-testing programs."

4. Preparing input data (6 mentions)

"Getting all the detailed source information needed . . . Accumulating precise input data . . . Verification of data."

5. Miscellaneous (1 each)

"Lack of local testing equipment prior to receipt of equipment . . . Trying to forecast future needs for personnel and equipment . . . Making feasibility study . . . Controlling computer operations . . . Improving methods for handling errors, and for debugging . . . Scheduling computer load in accounting . . . Fixing priority of developing applications . . . Organizing."

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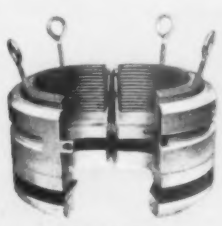

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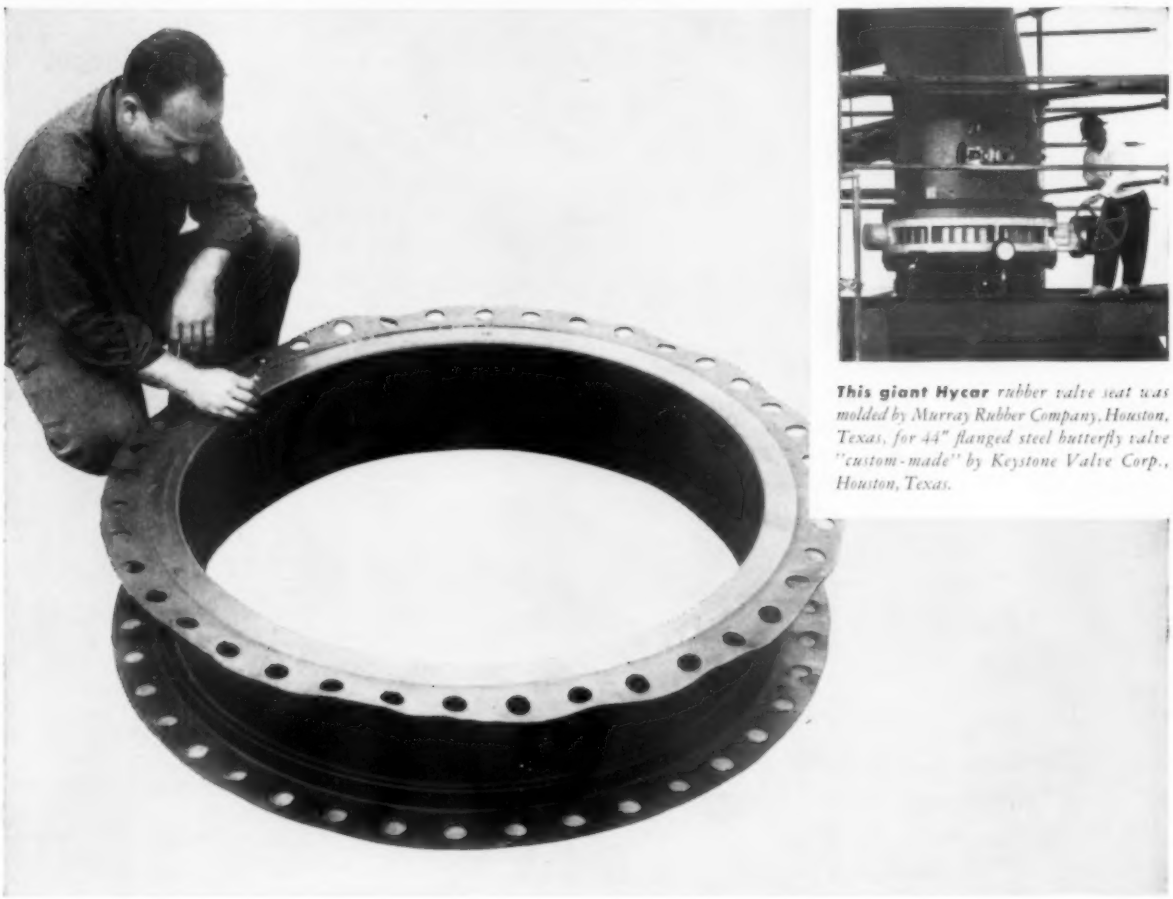

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King-sized Hycar valve seat seals 44 inch butterfly

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New Coatings—More for Your Money

Pipeliners got an important update on developments in pipeline coatings this week at the petroleum conference of the American Society of Mechanical Engineers.

Pipe coatings got special attention at the transportation sessions of the meeting, held in Tulsa. Two pipeline companies that have been working with new kinds of coatings long enough to firm up conclusions, offered these findings:

Southern Natural Gas Co. reported on the results of its test of "Timcoat"—a rubberized asphalt mastic coating for lines laid in marsh, swamp, and offshore areas. The report was highly favorable.

Southern Natural is convinced that Timcoat is the best coating for pipe that must withstand the attacks of marine organisms. Southern's L. N. Brown put it this way: "It must be said that Timcoat is a new product, which has not had sufficient time to completely prove itself.

"However, it can safely be said that the management of Southern Natural is thoroughly sold on the coating, and, at the present time, is again laying pipelines on which Timcoat is being used."

Timcoat was developed by Brown & Root, Inc., to replace yard-coated concrete-jacketed pipe, long the chief coating for pipes to be laid at water-bottom (PW—Nov.30'57,p23).

Southern was impressed with these Timcoat features: ease of handling, high-corrosion resistance, flexibility, and ductility—all at a cost comparable to coatings which, Southern feels, have less to offer.

A specially designed coating barge applies Timcoat. It uses a coating machine mounted on a self-propelled car, which moves on rails and carries with it a flame dryer and a cleaning machine.

This equipment extends over 16-ft., in which length pipe is flame-dried, cleaned, and coated.

This floating factory makes for on-site, continuous coating.

Checks made on sample Timcoated pipe in late July of this year showed no perceptible corrosive current flow, indicating that coating resistance on these samples, after a year and a half of exposure, is still infinite.

On cost, Brown says, "The actual cost of coating the first pipeline on which Timcoat was used was comparable with the cost of an enamel-and-concrete coating, including the cost of installing steel-reinforced concrete joints."

Timcoating equipment is now limited to 12¾-in. pipe. However, plans are now under way for a coating machine and attendant equipment to coat pipe up to 24 in.

Another new coating application—successful use of plastic tape on large diameter pipe—was described by its user, American Louisiana Pipe Line Co.

American Louisiana used the plastic tape coating on a 122-mi. segment of 22-in. pipe it laid last fall from Defiance, Ohio, to Bridgman, Mich. This was the first large-diameter line to be completely protected by the use of plastic tape.

The coating material chosen was a plastic tape with an overall thickness of 12 mils—8 mils of polyethylene film and 4 mils of adhesive.

American Louisiana pointed out that plastic tape costs more than conventional coating material. But work simplification, reduction in manpower and equipment, and improved supervision, it feels, offset the higher material cost.

Norris E. Miley described American Louisiana's experience with plastic coating tape this way:

"The total applied cost [of plastic tape] was competitive with that of the alternative American Louisiana specification, which would have been a hot bituminous coating . . . .

"Reduction in manpower and equipment and greater daily efficiency were the key economic contributions realized by employing tape as a coating. The reduction in the contractor's spread by the application of tape compared to hot coating under these same construction conditions was some 33 men—distributed through the unit operations from pipe cleaning through the right-of-way clean-up gang.

"There was also a reduction in equipment, including two tractors, two trucks, and five dope kettles per spread.

Coming: A Natural Gas Tanker

A Japanese firm says it has solved the major problems of shipping liquefied methane, and is now laying the groundwork for importing liquefied natural gas.

An industrywide search for a practical method of shipping liquefied methane has been going on for some time (PW—Nov.23'57,p26).

However, Tokyo Gas Co. feels that its research on the problem has progressed enough for it to plan on moving liquefied methane long distances overseas in a few years. A few "unresolved technical difficulties" do remain.

The company is currently lining up a natural gas supply—with the Persian Gulf area now considered the most likely source. Either Shell Oil Co. or California Texas Corp. will supply the gas.

Actually, Tokyo Gas may yet decide to import LPG instead of natural. But such a decision would now be based on economics, and no longer on the grounds of inept equipment for moving liquefied methane.

A specially-designed tanker with unique storage tanks and large refrigerating capacity will have to be built or converted from normal tanker service. It's felt that the tanker, in its first few years of service, would not have to make too many trips to fill the demand (only 30,000 tons of natural gas are needed to produce the 100-million cubic meters of gas that must be added annually to Japan's gas supply).

Therefore, conversion of an ordinary tanker into special liquefied gas tanker now appears more likely than building a special new one for such service.

Tokyo Gas isn't going into any detail about its method of keeping methane liquefied during a long voyage. However, it is now known that the liquefication will be accomplished basically through "shrinking" the methane—that is, by lowering its temperature. The company's liquefying facilities—"large but conventional" refrigerating equipment—are expected to be supplied by an American company.

No revaporizing equipment will be necessary—the liquefied methane will be revaporized when temperature is brought up to normal after delivery.

Special unloading, storing, and distribution facilities will be necessary. Plans now call for reclaiming a small part of Tokyo Bay, on which a special port with such facilities would be built.

What's New / IN TRANSPORTATION

Crude and products transported by 67 pipeline companies totalled 51.4-million bbl. more in the second-quarter of 1957 than in the corresponding 1956 period, according to the Interstate Commerce Commission.

ICC says that such pipeline shipments climbed to 1,107,000,000 bbl. in the second quarter of 1957, compared with 1,056,000,000 bbl. in the second quarter of 1956.

Combined revenues of the 67 companies—all with incomes of at least $500,000 annually—dropped to $163.4-million this year from $164.0-million a year earlier.

•

Product terminals are in the news this week. Continental Oil Co. has just put one into operation, and Ingram Oil Refining Co., Florida Peninsula Oil Co., and General Gas Corp. are all working on new ones.

Continental's new terminal, with a 2.1-million gal. storage capacity, went into business last week near Grapevine, Tex., to serve the Dallas marketing area.

Florida Peninsula, an affiliate of Hess, Inc., plans a terminal near Jacksonville, Fla., a facility with 6-million gal. of storage capacity. Construction hasn't begun yet.

Ingram will complete its new terminal at Tampa, Fla., next month. It will store 3-million gal. of gasoline, kerosine, and diesel fuel.

General Gas will build its terminal at Bainbridge, Ga., for distribution of LP-gas throughout Georgia, Alabama, and South Carolina.

•

Butte Pipe Line capacity is being increased from 49,000 b/d to 65,000 b/d. Shell Oil Co., owner of a 60% interest in the line, announced last week that improvements in the line, which runs from Baker, Mont., to Ft. Laramie, Wyo., will be completed by April, 1958.

The major expansion will be made at the Baker pump station, where new and larger impellers on all existing mainline pumps will be installed.

•

Natural gas reserves in the Mocane and Laverne areas of western Oklahoma have just been connected to transmission facilities of Colorado Interstate Gas Co.

The final link in the gathering system that will tap these reserves—about 850-billion cu. ft.—was completed recently. A main-line plant for extraction of natural gasoline and other liquid hydrocarbons is now planned for Mocane.

•

A new crude pickup system in Knox County, North Texas, has just been connected with the Shell Oil Co. trunk system there.

Toronto Pipe Line Co. recently placed the pickup system—20 mi. of 4-in. line from the Munday area—in operation.

•

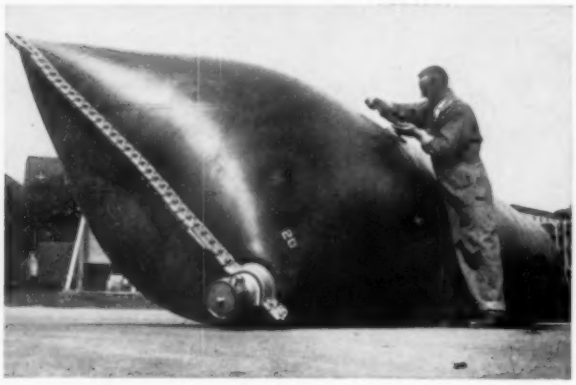
It looks as though Transcontinental Gas Pipe Line Co. will get Federal Power Commission approval to build and operate new natural gas transmission facilities at an estimated cost of $53.7-million.

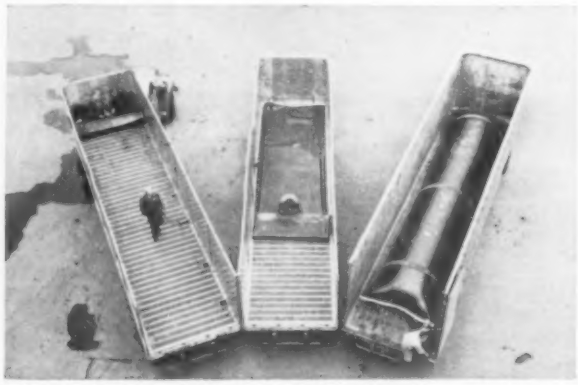
An FPC presiding examiner has just filed his decision—subject to review of the commission—authorizing the expansion, which would increase the firm's delivery capacity in Texas, Louisiana, Mississippi, Alabama, Georgia, and South Carolina, by 132,858 cu. ft. per day.

•

Interstate Oil Pipe Line Co. is building a 4-in. products pipe line from Esso Standard Oil Co.'s Baton Rouge (La.) refinery to Dow Chemical Co.'s Plaquemines (La.) plant, 15 mi. away.

The new line will supply LP-gas to the Dow plant.





New Giant "Toothpaste Tube" for Transportation or Storage

Here's "Sealdtank," the latest in collapsible tanks for moving or storing liquids. This giant rubber-fabric container, put on public display for the first time last week by its manufacturer, U.S. Rubber Co., holds 3,800 gal. and is designed for use with trucks, railroad cars, or barges.

When used in trucking Sealdtank makes possible transportation of dry cargo in one direction and liquid cargo on the return trip. Three basic steps (right) accomplish the necessary conversion. The Sealdtank inner surface can be made of any of a variety of special rubber compounds, which makes it possible to handle not only petroleum products but almost any kind of liquid, including some highly corrosive chemicals.

The container can be made in any size to fit any truck, railroad car, or barge. U.S. Rubber plans to make a 6,500-gal. size for the railroads and 10,000- to 20,000-gal. sizes for barges and plant storage.

Syria's Oil Policy at Crossroads

I. Western Oil Rights at Stake

DAMASCUS—Two different political elements are vying to establish Syria's oil and economic policies. Hanging on the outcome will be the future of two Western exploration ventures in northeastern Syria.

One is shared by a U. S. group: Syrian-American drilling contractor J. W. Menhall, with Atlantic Refining Co. and Portsmouth Steel Corp. The other is German: Soc. des Petroles Concordia, subsidiary of Deutsche Erdoel.

Both have reason to note that, in oil matters as well as in all economic and political questions, Damascus has been talking in two different voices lately.

First, there's the voice of the conservatives. These are wealthy, old-school politicians, usually large landowners.

To co-exist with the rising generation of extremists of many shades, they say: "We'll back your pro-Soviet foreign policy—if you'll keep Marx out of our economic system at home."

In the present set-up, this conservative group has a vital interest in assuring everyone—including the merchants, artisans, and farmers, and Syria's Arab neighbors—that Syria is still "positively neutral," very much Arab, and not at all communist.

On the other side are the younger politicians—socialists of sorts.

They feel that now is the time for all good Syrians to mix a little Marx in their nationalist brew.

A new socialist order may have been heralded by an official declaration that private enterprise is neither suitable nor welcome in Syria.

The statement was made Sept. 1 by Khalil Kallas, Socialist Minister of Economy. Kallas' view restates one position taken last spring in a parliamentary controversy over the question of granting oil development rights to the Menhall group, whose first wildcat had found oil.

The Prime Minister and leftist members of Parliament at the time had insisted the state itself should develop the country's oil resources.

Still, there's considerable speculation here on the significance of the Soviet oil exploration offer (PW—Sep.20'57,p53).

This, according to a disclosure by the Public Works Ministry, is part of the Soviet Union's economic aid pact with Syria.

The Russians, said ministry officials, don't want to acquire "monopolistic concessions." They'll just send Syria teams of geologists and petroleum engineers, together with seismic and drilling equipment.

Meanwhile, a Soviet team of 18 technical experts arrived in Damascus last week to study and approve the various development projects to be carried out with Soviet aid. They are expected to sign separate agreements for each project finally approved.

If oil exploration is one of the projects they'll consider now, northeastern Syria is geologically the most likely area.

Western oil men cannot yet be sure of their chances for continuing operations.

On the one hand, nonsocialist ministers keep on assuring them that, no matter what happens, their exploration rights will be left intact, and that development concessions will be granted in due time.

On the other hand, the oil men are also aware of what the socialists are saying publicly and planning on privately. In effect: "The oil belongs to the State. You're welcome to drill for it for a while, but you can't take it."

Meanwhile, the Public Works Ministry is already boasting that Syria will become an oil exporting state in 1959.

In 1958, a spokesman said, Syria would be producing 8,000 b/d—enough to meet 75% of domestic demand. He didn't say who would be producing it.

So far, however, there's only the one discovery well—Menhall's No. 1 Karatchuk, near the Iraq border, which is not yet completely tested.

The wildcat found pay a year ago at 6,700 ft., and is said to be able to make an estimated 1,000 b/d.

Menhall's group is now below 4,000 ft. in its No. 2 Karatchuk, which Public Works officials say has had some oil shows. The No. 3 Karatchuk has been spudded 1¼ mi. east of the discovery well. Despite the fact that Karatchuk is in a military zone, work is proceeding normally, according to Atlantic Refining officials now in the Middle East.

Meanwhile, Concordia also is proceeding with operations in the northeastern part of the country. It will spud its first test shortly in the Ghouna region of Jezira province, also near the Iraq border (PW—Jul. 12'57,p35).

II. Red Refinery Job Snagged

DAMASCUS — The first major Syrian project entrusted to the Soviet bloc—a 20,000 b/d refinery—is being delayed by assorted snags.

Contract for construction of the plant at Homs was awarded last spring to Czechoslovakia's Techno-Export over bitter protests in Parliament. Syria's fellow-travelling Public Works Minister Fakher el-Kayyali said the £5,420,000 ($15.2-million) Czech bid was the lowest.

The Czechs were given a final deadline of Sept. 1 to start work. But it has been postponed again.

The Syrians expected the refinery to be completed in late 1959. The Czechs claim they can still make it. But work may go well into 1960, according to local contractors.

According to the contract, the plant was to be completed within 27 months of April, 1957, when Syria notified the contractors to begin construction.

Under contract terms now disclosed, the Czechs will have to pay a fine of $600 for every day of delay after the promised completion date.

To avoid this, the Czechs may resort to the same tactics as the other Communist contractors in Syria, at Lattakia.

The Yugoslavs are building a port there, and the Bulgarians are building silos and minor installations.

But Communist slave-driving methods for speeding these jobs have already been protested.

Syrian workers employed by the Yugoslavs and Bulgarians at Lattakia in recent weeks complained about long overtime hours without extra pay, no Sundays or Fridays off, and tough foreign supervisors.

One block on the Homs refinery project was removed by Syria's re-

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cent appointment of Russian consulting engineers.

The Czechs had requested that non-Syrian members of a supervisory board be nationals of "neutral" states, so that "political considerations" would not hamper their work.

Finally, the bargain-hunting Public Works Minister engaged Russian technicians, who will get $100,000 for the job (PW—Sep.6'57,p47). Kayyali said a Belgian group previously approached had asked triple that amount.

Informed sources say the Czechs actually will transplant a 20-year-old German-built refinery, which was turned over to Czechoslovakia as war reparations.

Though rumored months earlier, this question came up before the Syrian Parliament only recently, before the recent leftward shift in the country. At that time, Ahmed Kanbar, a former Interior Minister, publicly accused Kayyali of accepting $1-million from the Czechs to conclude the deal.

The Syrian government has nine years to pay the total $15.2-million cost of the refinery.

An initial 10% down payment was delayed until June by a tax hassle, won by Kayyali's Public Works Ministry—which insisted Techno-Export was exempt from all taxation.

The second instalment is 15%, payable when the Czechs ship the equipment.

Another 10% will be paid after the refinery is erected. And the remaining 65% will be paid in seven instalments, at 3% interest, up to June 30, 1966.

Among western offers rejected by the Syrians was one from Procon, Inc., of the U. S. Its bid, by comparison, was under $18-million, with completion of a new plant in 15 months (against Techno-Export's 27 months), and 12-year payment at 3¼% interest.

New Sahara Well Going Into Production

The first Hassi Messaoud extension well can produce 2,100 b/d from 10,975 ft., according to an announcement in Algiers last week by Armand Collot, president of SN REPAL.

The well, OM-1 (above), will be put into production soon, he said. It is located 5 mi. northwest of the MD-1 Sahara discovery well, which found 459 ft. of pay sands. The latter is already producing from 11,381 ft. at a limited rate.

The second extension well has found 360 ft. of oil sands, according to Collot (PW — Aug.23'57,p63). This test, MD-2, hit granite at 12,687 ft. after penetrating 1,722 ft. of sandstone, with the pay zone in the upper level.

Meanwhile, drilling is being continued to outline the field.

Two tests are now being drilled on a northeast line from the discovery well. OM-7, located 4½ mi. east of OM-1, is now below 9,107 ft. The other, MD-4, is below 8,192 ft. at a location 2½ mi. northeast of MD-1.

Collot said drilling is about to start at two new locations, on a northwest-southeast line from the discovery. MD-5 will be 4 mi. east-southeast of the MD-1; OM-6 will be 4½ mi. west of OM-1.

Sahara Deadline Draws More Firms

PARIS—The rush for Sahara oil rights brought in some new faces last week, as more companies prepared to file bids, either by Sept. 24 for acreage to be released next month, or in the future:

• **Phillips Petroleum confirmed that it was negotiating with a French group** that would submit applications this week. It did not identify the group.

Unofficial Paris sources say Phillips is joining the group previously organized by Conorada. This is composed of the French affiliate of Franco-Wyoming Oil Co., the government-controlled Cie. des Petroles France-Afrique, and Omnirex, an oil financing company in which the old Suez Canal Co. is participating. Conorada withdrew from the group, reportedly because it couldn't be assured of getting sufficient acreage. It expects to make a Sahara bid later, however.

• **Richfield, and Texas Eastern Transmission, also were dickering with the government.** Both were reported in the running with Phillips to join the French group, organized by Conorada, that's bidding this week.

• **Los Angeles independent Edwin W. Pauley was talking about filing applications eventually.** Said Edwin W. Pauley, Jr.: "We're interested in the Sahara and French West Africa, but our discussions are only in the preliminary stage now."

• **Pechelbronn and Soc. Nationale des Petroles d'Aquitaine, both producers in metropolitan France, were also reported planning to make their first bids** for Sahara acreage. Pechelbronn is expected to have majority interest in a venture with other French companies.

• **Shell, which already holds Sahara interests, was reported ready to seek further acreage** in a bid with the government's Regie Autonome des Petroles.

Shell's present Sahara participations: a 35% interest in CREPS, which discovered oil at Edjele, near the Libya border; and a 65% interest in Cie. des Petroles d'Algerie.

• **Three newly-formed French oil financing organizations acquired an interest in promising acreage** north of the Edjele discovery last week.

They signed a joint venture agreement with Cie. d'Exploration Petroliere for exploration of four permits totaling 12,850 sq. mi., which were granted to CEP last March.

In this joint venture, FRANCAREP holds 17½%; EURAFREP 15%; and COPAREX 12½%. CEP, which holds the remaining 55%, will be operator.

The government, meanwhile, confirmed that it will sell nonvoting shares in its oil company holdings to to help finance exploration in the Sahara.

Its first issue of negotiable certificates probably will be offered to the public around Oct. 7. It is expected to represent about 20-billion francs worth of the government's holdings in Cie. Francaise de Petroles and in Soc. Nationale des Petroles d'Aquitaine.

Each certificate will probably represent 1/5 of the nominal value of a share, with a price slightly lower than the market price to compensate for lack of voting rights.

The over-all question of exactly how, and to what extent, foreign capital will participate in Sahara development is now being tackled by the government's Common Organization for the Sahara.

The latter was set up by French law last December, with the specific responsibility for developing the resources of France's North African territories.

It held its first technical committee meeting a couple of weeks ago to start outlining terms for foreign participation. Presiding was Max Lejeune, Minister for the Sahara.

No 75-25 Deal in Iran, Page Says

Howard Page, a director of Standard Oil Co. (N. J.), this week explained that the new Iranian-Italian oil contract is inaccurately called a 75-25 deal. It is in no way comparable to standard 50-50 deals, plus bonuses, and without government participation, he asserted.

Page said at a New York press conference that the contract between National Iranian Oil Co. and AGIP Mineraria probably would not set a precedent in most oil areas.

Whatever Iran's total share of profits from the partnership turns out to be, it will be well under 75%, Page said.

The government gets the standard 50% tax share of any profits.

The additional 25% comes only by NIOC's participation in the actual costs of development once oil is found. These can be substantial and risky.

In addition, profits will not be computed on the full market price of the oil produced.

The Italian managing director of SIRIP, the joint-stock company, is empowered by the NIOC-AGIP contract to grant 5% discounts to both partners without reference to any other authority, Page said.

Therefore, profits would be calculated on 90% of the oil's value. Thus, again, Iran's share could not reach the theoretical 75% total.

Whether the Italian partnership proves profitable for Iran depends on two factors: the amount of oil found, and market outlets once it's developed.

NIOC has no outlets of its own, other than Iran's internal market—which the Consortium must largely supply at present.

And AGIP's parent company, Italy's state-owned Ente Nazionale Idrocarburi, can offer only a minor outlet. It does not now have priority in Italy's domestic market.

By contrast, standard 50-50 profit-sharing deals, with bonuses, are likely to assure Iran greater profit in most cases, both for the short and long range, Page said.

This is because major international companies—which are the only ones with large guaranteed markets on a world-wide basis—are likely to make such offers.

This type of deal, with no government participation, is the only kind Jersey Standard itself is considering, Page said. His company will offer a bonus for offshore acreage in the Persian Gulf (PW—Sep.6'57,p6).

Bonuses, Page said, will be "obviously substantial" for choice areas, though not so great as the recent cash offers in Venezuela.

Those who cannot offer big bonuses, and who do not have major established outlets, are likely to offer Iran such "gimmicks" as participation.

The guarantee-income value of bonuses, Page points out, has been overlooked. It is a "bird-in-hand" for Iran.

For example, Page said, each multiple of $10 invested at 7% (the new interest rate in Britain), would net Iran an income (including the origi-

nal $10) of $22.50 over a 12-year exploration period.

For a substantial bonus in the millions, this alone would mean a big income for Iran. Here's why:

• Even if no oil is found, Iran still gets this "income" in 50-50 deals-plus-bonus. By contrast, it gets not a cent from NIOC participation deals if oil is not found.

• If large pools of oil are found, then the bonus, Page conceded, may not offer Iran as much extra income as it would get with NIOC participation.

But the final comparison of Iran's income under the two types of deals depends on the market outlets of the concessionnaire company, Page pointed out.

Thus, the question boils down to: "50% of what, as against 75% of what?" In other words, 50% of a big cake can be much bigger than 75% of a cupcake.

What's New / AROUND THE WORLD

Arabian Oil Rights Set?

JAPAN—The Japanese now hope to button up negotiations for offshore rights in the Saudi Arabia-Kuwait Neutral Zone in October, Tokyo sources said this week.

A 12-man Japanese group headed by officials of Japan Petroleum Trading Co. has been in Jiddah for a week, discussing possible concession areas with Saudi officials.

Separate negotiations are now being conducted between Saudi Arabia and Kuwait on the Neutral Zone offshore. They are proceeding satisfactorily, according to reports that have been received in Japan.

The Japanese originally expressed interest in three additional areas when Saudi Arabia agreed to start the present formal talks. These include: onshore acreage around the capital city of Riyadh; acreage near the Saudi-Yemen border; and the Red Sea Island of Farsan, opposite the Saudi-Yemen border.

These additional areas are apparently not yet ruled out, though the mission in Jiddah is now concentrating on the Neutral Zone offshore as most promising.

Tokyo sources estimate that concession fees will take ⅔ of the $9.8-million capital subscribed so far for Arabian Oil Co., Ltd.

This was formed for the venture in July, with authorized capital set at $27.8-million.

A total of 60 Japanese companies will participate.

SAUDI ARABIA—Two Atlantic Refining Co. officials arrived in Jiddah last week to discuss possible exploration rights with Saudi government officials.

The two are Roy W. Johns, general counsel, and W. Dow Hamm, general exploration manager.

The company is believed interested in oil rights for interior acreage in Saudi Arabia, and offshore rights in the Saudi Arabia-Kuwait Neutral Zone, as well as offshore in Kuwait itself (PW—Sep.20'57,p53).

Johns and Hamm will later head for Damascus to study the situation in Syria, where Atlantic has an interest in the J. W. Menhall operations that are going on (page 53).

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Oasis Slates First Test

LIBYA—International Drilling Co. N.V. will spud a 15,000-ft. test early next year for Oasis Oil Co. of Libya.

The test site is 480 mi. east of the Algerian border, 105 mi. southeast of the Gulf of Sirte, on the Mediterranean coast, and 105 mi. southwest of El Agheila.

The test is the first on a 1.2-million acre concession, which Oasis, an Ohio Oil Co. subsidiary, operates for its joint account with Continental Oil and Amerada Petroleum. Joint holdings of the three-company group total some 47-million acres.

In announcing the contract award, Fred J. Funk, manager of Ohio Oil's foreign operations, said the test will look for oil below a geological feature prominent at the surface—a long north-south trending anticline. Oasis Oil geologists made a surface study of the feature, then followed with a seismograph survey that confirmed the surface work.

A heavy-duty rotary drilling rig will be shipped to Libya after International Drilling tests the rig near Houston.

•

PHILIPPINES — Standard-Vacuum Oil Co. has abandoned its first test in Luzon's Cagayan Valley, where Philippine Oil Development Co. is now continuing its own second test.

Stanvac halted drilling in No. 1 Faire at 10,324 ft. after the hole had caved (PW—Apr.5'57,p37).

It is now studying the findings before making its second location in the valley.

The No. 1 Faire was spudded last March 225 mi. northeast of Manila, and 40 mi. north of PODCO's No. 1 Tumauini, which was abandoned at 10,414 ft. last year.

PODCO is now below 10,494 ft. in its No. 2 Tumauini, which was spudded June 3 about 700 ft. northwest of the first test.

Caltex affiliates, which have cross options with PODCO on some Cagayan acreage, have an interest in the well. A joint operating committee reported that 9⅝-in. casing was cemented at 10,367 ft. after high-pressure gas zone was controlled.

•

EGYPT—The government will seek new backers for its projected pipeline parallel to the Suez Canal, follow breakdown of negotiations with A. S. Onassis.

The Egyptians say that the talks with Onassis failed because he could not get other big tanker owners to participate with him in a proposed 49% foreign interest in the line (PW—Aug.2'57,p43).

The Egyptians also report that they had approached Ralph M. Parsons Co., of Los Angeles, and Getty Oil Co., before contacting Onassis.

•

CAMEROUN—Three gas wells brought in at Logbaba last year have apparently proved disappointing.

Reserves for the field in West Africa are now estimated at only 7.7-billion cu. ft., according to an announcement by Soc. de Recherches et d'Exploitation des Petroles du Cameroun. This is less than half the estimate made earlier by the French operator, on the basis of its Logbaba wells No. LA 101, 102, and 103. A fourth, started late last year, is still in process of being drilled.

DRUM "BANK" FOR USED CANS, key to economic use of aluminum cans, is demonstrated by (left to right): W. J. Murr, manager of Esso Standard's trade relations division; B. L. Ray, Esso vice-president and director; and J. L. Reynolds, executive vice-president of Reynolds Metals Co. Can-crusher (right) flattens can into coin-shaped slug when lid is closed by the station dealer, with compressed-air piston supplying the pressure. Sale of filled drums brings dealers extra income. It's . . .

A First: Motor Oil in Aluminum Cans

Esso Standard Oil Co. has made the big decision to pioneer in the use of aluminum oil cans. The company this week announced a contract with Reynolds Metals Co. for some 35-million quart cans a year—about a third of the total Esso supplies to service stations.

When the first shipments reach dealers in the next few months, motorists will be buying aluminum-packaged lubes in volume for the first time in oil industry history. Until now, aluminum cans have been used in only small, "pilot" projects.

The contract with Reynolds calls for delivery of a year's supply of cans (roughly 35-million) to the motor oil packaging plant at Esso's Bayonne (N. J.) refinery.

Esso may also exercise an option to extend deliveries to its Baltimore packaging plant for a year. This would mean that two-thirds of Esso's quart oil sales would be converted from tin-plated steel cans to aluminum cans. The company's only other sizeable packaging plant is at Baton Rouge.

From the Bayonne plant, shipments will be made to service stations in New England, New York, New Jersey, and part of Pennsylvania.

The cans will be fabricated by three leading container manufacturers—American Can Co., and Crown Cork & Seal Co. Reynolds Metals will supply the aluminum sheets.

The noncorrosiveness and light weight of aluminum cans were important factors in swinging Esso's decision. Says B. L. Ray, Esso vice-president, "the fact that aluminum cans present no corrosion problems is helpful chiefly in maintaining the attractive appearance of the motor oil package.

Besides being completely rust-resistant, the aluminum cans weigh only 2 oz.—half as much as the tinplate cans now in use. This will mean some saving in transportation costs for Esso.

The company also likes the idea of having another can supply source. As Ray expresses it, "Alternate materials and suppliers add flexibility to operations. They increase competition, and thus are a factor in keeping costs at the lowest possible level. New materials and supply sources are also a safeguard against shortages.

Aluminum is now able to compete with steel from a can price standpoint. Reason: A method has been worked out to capitalize on the high scrap value of aluminum cans. Significance: Esso's bill for cans will be unchanged.

Says J. L. Reynolds, executive vice-president of Reynolds Metals, "The burden was on the aluminum industry to prove the practicality of the aluminum can. It was up to us to prove to the can makers and their customers that we had a product that was economically competitive in every way with materials in current use. That is why we have accepted the obligation for recovery."

Details of the salvage plan have not been completed, but Reynolds will see that used cans are picked up at stations.

Key to the reclaiming job is a can-crushing device (picture) developed by Esso and Reynolds. Placed on a 55-gal. drum, the crusher squeezes the used cans into flat, coin-shaped slugs, and then drops them into the oil drum "bank" until the salvage collection is made.

The power needed to flatten the can comes from a compressed-air piston inside the crusher. The air is supplied by a hose from the station's regular air compressor.

Reynolds is also taking the responsibility for providing station dealers with this crushing equipment. (What appears to be a drum-sized facsimile of Esso's quart oil can in the picture is actually a cylindrical "sleeve" that fits over any 55-gal. drum. Reynolds is making these sleeves.)

The aluminum cans will bring no

increase in motor oil prices. Not only will Esso be buying cans at the "old" price, but it will also be assuming none of the cost or headaches that go along with can salvage.

The dealer will get extra income, since he will be paid a flat sum for each drum of crushed cans, yet will pay Esso no more than before for wholesale lube shipments.

"Also," says Ray, "We hope the new method of can disposal will be an aid to better housekeeping at service stations.

The Esso-Reynolds contract follows years of experimentation, plus a full-scale marketing test of the aluminum can in Richmond and Norfolk, Va., in the past year. The latter involved 200,000 quart cans, sold through Esso service stations in the two cities.

It was six years ago that Reynolds research laboratories in Richmond began the work of rolling and forming aluminum blanks, making can-ends, testing can-sealing compounds, and finally producing the complete can at commercial speeds. The can was subjected to standard abuse tests.

For several years, Esso itself has been studying aluminum and other materials that might provide satisfactory oil packaging.

Reynolds Metals hopes that the contract (which is the first large aluminum-can order in any industry) will lead to the development of other types of oil containers that are made from aluminum.

Concludes Executive Vice-President Reynolds, "We consider the Esso order as significant a development for the aluminum industry as the introduction ten years ago of the first aluminum foil for household use.

"It is a major breakthrough for the aluminum industry in its long battle to win a place in the total U.S. market of more than 40-billion cans a year—a $1.6-billion annual business."

What's New / IN MARKETING

Phillips Gives Jobbers Free Life Insurance

Phillips Petroleum Co. is offering its jobbers a group life insurance program—including both free and contributory plans.

The new insurance applies to all "Phillips 66" jobbers, including those who sell the company's refined products, Philgas (Phillips' trade name for its liquefied petroleum gas), and fertilizer material.

Each jobber with more than 37 months of service gets $2,000 of free life insurance. A proportionate amount of insurance goes to those with less service. This is based on yearly increments of $500, effective with the signing of a contract. If a jobber retires after the age of 65, his free insurance continues.

The new plan also gives a jobber the option of buying up to $10,000 worth of additional life insurance at greatly reduced group rates.

•

The top service station training needs for 1958 are driveway selling, mounting tires, recruiting new station attendants, and figuring employee incentives—according to an Independent survey by American Visuals Corp.

The company's third annual "Hoods Up" survey is based on returns from more than 700 marketing and sales people in 68 oil companies.

Here are the top training needs in four basic categories, in the order rated by respondents:

- Sales: driveway selling, lube room selling, customer followup, displays, free services.
- Service training: mounting tires, radiator servicing (antifreeze, cleaning, and flushing), spark plug service, fan belt replacement, wheel balancing.
- Station operations: recruiting new employes, breaking in new men, new dealers in new locations, station maintenance, extended-hour operations.
- Financial management: figuring employee incentives, setting up useful records systems, customer credit, competitive pricing, quantity buying and discounts.

•

The Roosevelt subcommittee ruckus over oil pricing practices is lingering on in South Bend, Ind. A federal grand jury investigation, stemming from the subcommittee's hearings, is slated to reconvene there Oct. 7.

The new session will be the jury's fourth since the subcommittee's hearings last May 1. Five majors cited in service station dealers' testimony to the subcommittee are Indiana Standard, Socony, Ohio Oil, Phillips, and Sun.

•

Tulsa service station men have dreamed up a unique community-service project: a free safety check of automobiles. Its double reward: safer city streets and goodwill for the service station business.

The program is sponsored by the petroleum information committee of the Tulsa Chamber of Commerce. Participating in this year's pilot operation were 67 station men, representing 13 oil companies. The traffic division of the local police department cooperated by giving instruction in how to safety-check autos.

During a three-day period, 2,680 autos were checked for ten safety features: brakes, steering, front lights, rear lights, rear view mirror, horn, windshield wipers, glass, exhaust system, and tires. A total of 308 autos were found to have at least one unsafe feature. Drivers of 152 of these unsafe cars had the faulty feature repaired immediately.

Station men contributed a four-hour shift to man the safety lanes, which were open from 9 a.m. to 5 p.m. They reminded motorists to renew drivers' licenses and to drive slowly. It also gave them a chance to put in a plug for the service station business and hand out promotional brochures.

The program was so well received by the community that the station men plan to suggest it to the Oil Information Committee of API as a national project.

•

Continental Oil Co. has completed a $320,000 products terminal near Grapevine, Tex., to serve its expanding marketing facilities in the Ft. Worth-Dallas area.

The terminal includes storage tanks with a capacity of 2.1-million gal., tank truck loading facilities, and a service shop. It is located at the eastern end of Continental Pipe Line Co.'s 6-in. products line from Wichita Falls.

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J&L – A GREAT NAME IN SUPPLIES

DEPT/Personals

RICHARD E. LAUTERBACH has been named vice-president and director of manufacturing for General Petroleum Corp., succeeding **Thomas P. Simpson.** Simpson, as previously reported (PW—Sep.13'57,p82) moves to New York as general manager of manufacturing for Socony Mobil Oil Co., the parent. Lauterbach has been manager of General Petroleum's manufacturing department since June, 1953.

JOHN B. NUNN has been made land manager for McRae Oil & Gas Co., in Denver. He was formerly associated with Ashland Oil & Refining Co.

A. M. ABERNETHY is president of Bayview Oil Corp., newly formed Dallas company assuming the operation of properties formerly owned by Byrd Oil Corp. Abernethy, a Toronto-based Canadian financier, and his associates acquired control of Byrd Oil in April, 1956. Other officers are **A. Harvey Arant,** Dallas oil man, vice-president; and **Arch C. Baker,** secretary-treasurer. Bayview operates producting properties in a seven-state area.

WARREN W. MANKIN, district engineer and head of the engineering department for the New Mexico Oil Conservation Commission in Santa Fe, has resigned to join the staff of Aztec Oil & Gas Co., Dallas, as chief engineer. Before joining the OCC staff 2½ years ago, Mankin was an engineer with The Texas Co. for ten years.

LLOYD L. REYNOLDS has been named assistant plant manager at Ethyl Corp.'s new San Francisco manufacturing plant, now under construction at Pittsburg, Calif. Other staff appointments at Pittsburg are **Feltus H. Wade,** maintenance superintendent; **James E. Rogers,** operating supervisor; **Earl S. Wirtz,** industrial engineer; **Robert D. Sinner,** engineering superintendent; **Walter G. Weakley,** purchasing agent; **William J. Splaine,** chief accountant; **Orland W. Cooper,** plant chemist; **John Elder,** supervisor of maintenance; and **G. L. James,** engineer inspector.

DR. AUGUST GOLDSTEIN, JR., has joined the staff of Bell Oil & Gas Co., Tulsa independent producer, refiner, and marketer, as chief geologist. He was formerly associated with Pan American Petroleum Co.

JOHN E. HARBIN and **E. MARION SHEPHERD** have been elected assistant treasurer and assistant secretary, respectively, of Sun Pipe Line Co., Beaumont, Tex. Harbin also becomes accounting office manager and cashier for the crude lines department, a newly created position. He formerly was section head in the accounting department. Shepherd assumes Harbin's former duties, and retains the classification of section supervisor. In Calgary, **Charles W. Weeks** has been named district geologist for south, central, and northeastern Alberta, including the tar-sands area, for Sun Oil, the parent company. He joined Sun in 1952, and most recently was well-site and subsurface geologist, spending a good portion of his time working up the geology of the Alberta Fairway area.

ARNOLD G. RADKE has been promoted to general drilling superintendent of Garvey Drilling Co., Wichita, Kan. In this new position, he will oversee the operation of 17 rotary rigs in Kansas, Oklahoma, Colorado, and Nebraska. **Calvin Roberts** becomes drilling superintendent for the Kansas-Oklahoma district.

D. G. HAMILTON has been named president of the newly formed Delta Oil, Inc., Wichita, Kan. Other officers are **Howland Newland,** vice-president and treasurer; and **Henry Edwards,** secretary. The company has two drilling rigs.

W. R. LUND will manage production for Shell Oil Co.'s New Orleans exploration and production area. He succeeds **J. W. Pittman,** who is on an extended leave of absence due to an automobile accident. Lund was formerly area production manager in Calgary.

W. R. Lund

T. M. Hendrickson

THOMAS M. HENDRICKSON is the newly appointed Gulf Coast division geologist for Rimrock Tidelands, Inc., in New Orleans. He was division geologist for Frankfurt Oil Co. for two years prior to joining Rimrock.

G. B. REID has been promoted to manager of the western automotive division of Mobil Oil Co., Ltd., Bristol, England. He succeeds **Bryce Cousens,** who has resigned to accept an executive appointment with Standard Motor Co., Ltd. Reid has been district manager of the southern automotive division since 1952.

SOUTHERN PACIFIC PIPE LINES, INC., has named four new chief operator-deliverymen and two assistants. The chief operator-deliverymen are **J. C. Brown,** Roseville; **J. G. Sparks,** Concord; **J. D. Owen,** Colfax; all in California; and **T. T. Hendrix,** Reno, Nev. The two assistants are **L. F. Lee,** Concord; and **J. W. Sims,** Phoenix, Ariz.

THEODORE W. SILL, JR., has been elected a director and secretary of Southwest Oil Corp., New York. He is an associate of Richardson, Bellows, Henry & Co., of New York, management consultants.

L. E. HESS is the new operations manager for Mobil Oil Co. de Colombia, in Bogota. Hess, with Socony since 1938, has been in New York as petroleum engineer in the production department since 1951.

M. W. WOLF transfers to Seattle as superintendent of the northwestern division of Standard Oil Co. of California-Western Operations, Inc. **C. J. McGinnis** succeeds him as exploration superintendent of the northwest division at Billings, Mont., of The California Co., a Stancal subsidiary. **S. J. Frazer, R. B. Austin,** and **Howard Ellinwood** are three newly assigned district exploration superintendents for The California Co. Frazer moves from Billings to Denver, Austin from Bismarck, N. D., to Billings, and Ellinwood remains at Bismarck.

R. E. GRISWOLD, formerly staff geologist in the Houston general manager's office of The Texas Co., has been promoted to assistant division geologist at Denver. **Thomas F. Brawner** is the new assistant to the director of public relations at Houston. He has been with Texaco since 1946.

JACK E. OSMAN will manage advertising and sales promotion for the Pennzoil division of South Penn Oil Co., Oil City, Pa. He succeeds **E. F. Johnson,** who is retiring after 26½ years service. Osman was formerly assistant director of advertising for Republic Steel Corp., Cleveland.

THOMAS W. PHELPS, assistant to the board chairman of Socony Mobil Oil Co., New York, has been elected 1958 national chairman of the API's Oil Information Committee. He succeeds **M. S. Hauser,** public relations director of Ohio Oil Co., Findlay. Vice-chairmen elected are: **R. H. Collacott,** public relations director, Standard Oil Co. (Ohio), Cleveland; **Russell D. Karns,** assistant to the president, Pan American Petroleum Corp., Tulsa; **G. A. Mabry,** adver-

HOW TO DOUBLE REFINERY RUNNING-TIME BY KEEPING CORROSION DOWN

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ER-57-1

tising and public relations manager, Humble Oil & Refining Co., Houston; and **Stewart Schackne,** public relations manager, Standard Oil Co. (N. J.), New York. **Donald R. Waugh** of the New York OIC staff has been elected secretary. **Lawrence Heyl, Jr.,** joins the OIC editorial staff in New York. He was formerly a member of the public relation department of General Foods Corp., White Plains, N. Y.

J. B. Saunders

B. M. Kerr

J. B. SAUNDERS and **BREENE M. KERR** have been elected directors of Kerr-McGee Oil Industries, Inc., Oklahoma City. Saunders is president of Triangle Refineries, Inc., Houston company acquired this spring by Kerr-McGee. Kerr, son of the founder and chairman of the company, is systems evaluation engineer.

HUGH M. LOONEY has been appointed geologist for British-American Oil Producing Co.'s southwestern division, in Midland, Tex. With B-A since 1953, he was district geologist at Ft. Worth prior to the promotion. The district exploration office at Ft. Worth has closed, and personnel have been transferred to the Midland division office. B-A's southwestern division office in Midland is moving from the V&J Tower to the new Wilco Building.

A. J. Le BLANC has been promoted to coordinating engineer of Pipe Line Technologists, Inc., Houston. He has been with the company since December, 1952.

FRANK L. GREENE will manage Delhi-Taylor Oil Corp.'s newly formed operating subsidiary in Panama: Panamanian Delhi Petrolera, Inc. The company, with headquarters in Panama City, will conduct an exploration program on a 1,660,000-acre concession (PW—Sep.6'57,p47) assigned to the parent company by the Panamanian government. Greene has been active in Central American oil affairs for the past three years.

WILLIAM H. WOODS is the new vice-president of Runnels Gas Products Corp., Houston subsidiary of Union Oil & Gas Corp. of Louisiana. He will continue as superintendent of Union Oil's gas department.

AMBASSADOR OIL CORP. has promoted seven men in the secondary recovery department in line with the continued expansion of its waterflood operations. They are **B. J. Kellenberger,** from chief engineer to assistant to the president; **Herbert L. McCracken,** from Roswell, N. M. to Ft. Worth as both chief engineer and assistant superintendent of waterfloods; **Kenneth D. Myrick,** from waterflood project supervisor to district supervisor at Monahans, Tex.; **E. W. Rickey,** to waterflood district supervisor in southeastern Kansas and northeastern Oklahoma, at Bartlesville, Okla.; **Wayne Capron,** from Abilene, Tex., to Artesia, N. M., as project supervisor of newly acquired waterflood property; **Don Layton,** from project engineer at Ottawa, Kan., to waterflood project supervisor at Caprock, N. M.; and **H. O. Murphy,** from Independence, Kan., to Brownwood, Tex., as project supervisor of waterfloods in Brown County.

J. E. FINLEY has been promoted to the newly created position of assistant regional manager of exploration for Continental Oil Co.'s southwestern region, in Ft. Worth. He was formerly assistant to the manager of the geophysical section at Houston. **Bruce F. Curtis,** formerly Rocky Mountain regional geologist with Conoco at Denver, has resigned to become associate professor of geology at the University of Colorado, at Boulder.

JOHN J. H. PHILLIPS has joined Ohio Oil Co. in Findlay, as head of its newly expanded advertising and sales promotion department. He was formerly senior account executive with Benton & Bowles, Inc., New York advertising agency.

JOHN R. PACE has been named credit manager for Tuloma Gas Products Co., Tulsa LP-gas marketer. He has been administrative assistant to the treasurer since August, 1954, when he joined the company.

HERBERT V. SMOCK will manage The Texas Co.'s Minneapolis sales division. He succeeds **Prentiss H. Savage,** who has retired after 37 years' service. Replacing Smock as assistant manager of the Indianapolis division is **Floyd R. Skipwith. George M. Bickel,** formerly assistant manager of operations of the Indianapolis division, succeeds Skipwith as assistant manager of sales of the Denver division.

TED FANNIN is the representative of Davis Oil Co. at its newly opened office in Albuquerque, N. M. The Denver firm has been active in southeastern Utah and northwestern New Mexico as well as in several other Rocky Mountain areas.

ARTHUR E. DIETERT has been appointed Cities Service Oil Co. (Del.) representative on the CATC management committee, in Houston. He recently returned from Italy, where for several months he has been on special assignment for the company. The CATC group is engaged in oil and gas exploration and development in the offshore areas of Louisiana and Texas. **Hawley M. Kilpatrick** transfers from Lafayette, La. to Casper, Wyo., as district landman for Cities Service, replacing **Walter Wittlinger,** who has resigned. **Sam W. Franklin** succeeds Kilpatrick as district landman in Lafayette. Replacing Franklin as district landman in Olney, Ill., is **William V. L. Nations,** formerly Houston landman.

J. WILLIAM SCHMOTZER, former assistant chief geologist, is promoted to chief geologist of Arkansas Fuel Oil Corp., Shreveport, La. **Dr. J. K. Rogers** has been named regional geologist in Shreveport. He is succeeded as Ark-La-Tex exploration division manager by **A. V. Hargis. J. C. Bianchi,** formerly division geologist at San Antonio, replaces Hargis as manager of the Lafayette (La.) office. **L. B. Smith, Jr.,** transfers to Shreveport as geologist in the Ark-La-Tex division exploration office. **K. S. Briggs,** division geologist at Lafayette, replaces Smith as manager of the Jackson (Miss.) exploration office. **L. H. Stayton, Jr.,** becomes assistant manager in addition to his duties as division landman at Lafayette. **J. H. Watt** is the new resident landman at Jackson, and **F. E. Ruffin** succeeds him there as division landman. **W. C. Hill** goes to the San Antonio office as division landman. He will be succeeded as contract and title superintendent in Shreveport by **B. N. Corn,** East Texas district landman.

WILLIAM S. GRAY and **HARVEY W. BLISS** are newly appointed directors of Kroy Oils, Ltd., Calgary. They replace **Colin A. Campbell** and **George Buchanan,** who have resigned. Gray is vice-president of New Gas Exploration Co., and a partner of Locke, Gray & Co., Calgary investment firm. Bliss is a partner of Moran, Fenton, Bliss & Co., chartered accountants, and secretary-treasurer of Anaconda Petroleum, Ltd., both in Calgary.

WALDO W. NEIKIRK is the new assistant controller of Tidewater Oil Co., in San Francisco, a newly created position. He had been treasurer and controller of Dewey & Almy Chemical Co., Cambridge, Mass.

W. W. Neikirk

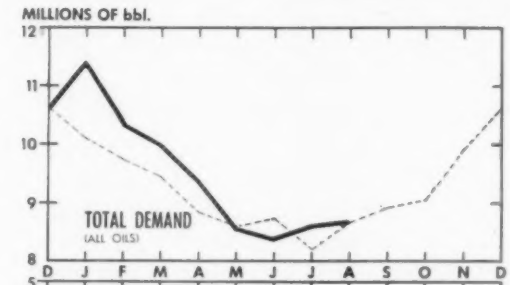
Dr. J. C. Geniesse

DR. JOHN C. GENIESSE will manage the newly created product development and technical services division of Atlantic Refining Co.'s marketing department, Philadelphia. He was formerly a divisional director of the research and development department.

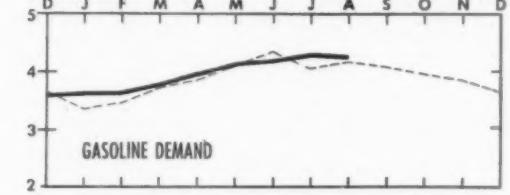
ARTHUR W. WINTER is the new controller of Great Northern Oil Co., St. Paul, Minn. Prior to the appointment, he headed his own firm, Winter Distributing Co., Tucson, Ariz., from 1950 to 1957. Previously, he was president of Roosevelt Oil & Refining Co., Mt. Pleasant, Mich.

PETROLEUM WEEK'S

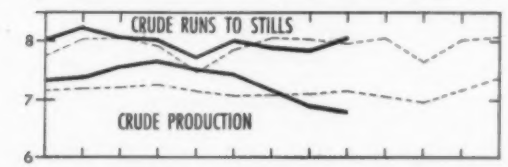
Fingertip Figures



TOTAL DEMAND
Latest week average 8.649
Year ago 8.751

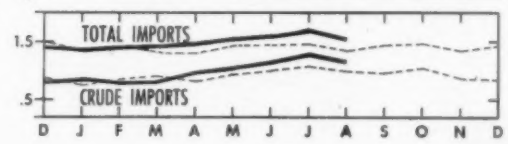


GASOLINE DEMAND
Latest 4-week average 4.120
Year ago 4.029



RUNS TO STILLS
Latest week 7.830
Previous week 8.056
Year ago 8.041

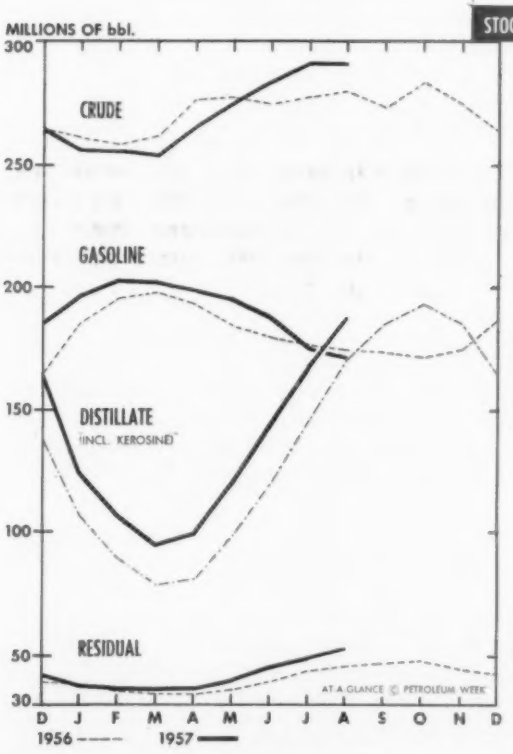
CRUDE PRODUCTION
Latest week 6.840
Previous week 6.821
Year ago 7.063



TOTAL IMPORTS
Latest week 1.502
Previous week 1.333
Year ago 1.365

CRUDE IMPORTS
Latest week .977
Previous week .968
Year ago .939

STOCKS



CRUDE STOCKS
Week ended 9-14 282.1
Previous week 282.5
Year ago 275.3

GASOLINE
Latest week 174.1
Previous week 173.8
Year ago 176.9

DISTILLATES
Latest week 201.5
Previous week 198.9
Year ago 182.5

RESIDUAL
Latest week 56.0
Previous week 55.2
Year ago 47.8

With the new heating season about to get under way, the distillate position is relatively better than it was six months ago—at the end of last winter.

The improvement, though, is strictly relative. Current stocks of middle distillates (which includes kerosine) are at an all-time high of 201.5-million bbl. And they will probably continue to rise until the end of October.

But compared with a year ago, the present inventory is only up 10%. At the end of March, on the other hand, distillates stocks were 17.8% higher than a year previous.

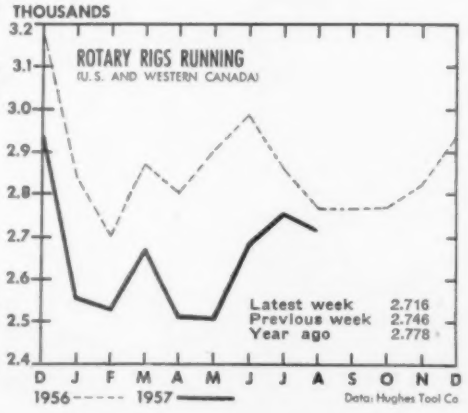
The statistical improvement is the result of holding refinery output of distillates this summer 1.1% below last year. Demand during the summer months—primarily shipments from refineries to secondary storage—averaged about 1,500 b/d, or slightly below 1956.

Despite the relative improvement, the fall and winter outlook indicates that refinery output of distillates will have to be held down if excessive inventory accumulation is to be prevented.

Estimates of demand for distillates in the next six months indicate that demand may run about 5% ahead of last fall and winter. Such estimates assume normally cold weather. Warmer-than-normal weather could easily upset the forecasts—just as it did last year, when fall and winter demand rose only 2.3%.

At the present level, middle distillate stocks are considered more than ample to meet the requirements of a normal winter. In fact, based on the industry's performance in previous years, the stocks are ample to meet the needs of much colder weather.

Any unnecessary increases in refinery output of distillates will only serve to make additional gasoline that will have to be carried in storage through the winter.


THOUSANDS
ROTARY RIGS RUNNING
(U.S. AND WESTERN CANADA)
Latest week 2.716
Previous week 2.746
Year ago 2.778
D J F M A M J J A S O N D
1956 ----- 1957 ——
Data: Hughes Tool Co

The Market Trend

Distillates: Fall Is Here—or Is It?

Distillate markets have somewhat resembled a quiz show this past summer. The weekly teaser of "Will heating oil prices drop again?" has now pyramided to the $64,000 question: "Can we squeeze by without another cut until cold weather arrives?"

Discounts that have already appeared have made marketers fidgety. Cuts of 0.25¢ a gal. appeared at Philadelphia early this week, and some buyers were getting 0.2¢ a gal. at New York Harbor.

The answer to the big question could be unfilled secondary storage. Although secondary capacity is relatively small in proportion to primary storage, its importance looms larger and larger as fall approaches, and distillate stocks in the hands of primaries are at a peak. At this time of year, a mere half-dozen cargoes without a home can wreak havoc in the market.

Guesstimates that there is a substantial volume of secondary storage that is not filled are based on the relative failure of this year's summer-fill program. Nobody knows how much secondary storage is open East of the Rockies. But primary suppliers are sure it must be plenty, because summer takings by resellers throughout the warm months were puny. The main objective of the summer-fill program is to fill secondary storage right at the start, even at the expense of making price concessions. But resellers who were caught with higher priced oil in their tanks as a result of mild fourth quarter of 1956 and last Spring just didn't bite this year. They've adopted a wait-and-see attitude all summer.

Even so, the summer-fill program this year was probably more costly than in any previous year, with suppliers granting rebates totaling millions. Example: No. 2 fuel prices dropped a total of 1.4¢ a gal. in the East since the start of the program, in May. This represents a loss to sellers in the neighborhood of $70,000 for each cargo. There is little likelihood that suppliers can recoup this amount in the coming season. "It's like trying to sell air conditioners in the middle of winter and taking a licking on what few sales you make," one major lamented.

Irony of the current situation is that any idea of dropping the costly summer-fill program at the end of September this year has gone by the boards. Distillate markets are weak. And with resellers' current disinclination to buy, some majors have extended the program through October.

Railroads On Top Again:

The big railroad buyers are continuing their game of playing one oil seller against another. Their ace in the hole: mobility. One buyer secured an additional 0.25¢ discount in the Midwest and it touched off a chain reaction. Sellers of railroad diesel at Albany found they had to equalize to the tune of 0.7¢ gal. to meet lower prices in Toledo. It wasn't long before many other supply points in the East were affected.

Miscounts Discounts:

LP-gas prices settled out at higher levels following delayed increases by some producers. But the boost was not without confusion, because of the wide variety of discounts that applied to propane price schedules during summer months. One group 3 producer, weary from tracing competitive developments, says discounts have no place in postings for propane. He threatens to quote 9.999¢ gal. for product and give discount of 5.999¢ gal.

The Market Place AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All Prices as of September 23

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U.S. Gulf Coast, cargoes
- Gasoline, 98 oct prem 13.25-14.375
- Gasoline, 92 oct reg 11.5-12.625
- Kerosine 9-11
- Heating oil, No. 2 ..... 9-10.5
- Gas oil, 48-52 d.i. 9.25-10.625
- Fuel oil, bunker "C" $2.55-3.15

Caribbean, cargoes
- Avgas, Grade 100/130 ..... 17.5
- Gasoline, 93 oct research prem 11.75
- Gasoline, 87 oct research reg 10.875
- Gasoline, 79 oct research 10.125
- Gasoline, 70-72 oct motor method 9.75
- Kerosine 9.25
- Heating oil, No. 2 9
- Gas oil, 48-52 d.i. 9.25
- Fuel oil, bunker "C" $2.55

New York Harbor, barges
- Kerosine 10.75-11.25
- Heating oil, No. 2 ..... 10.25-10.75
- Fuel oil, No. 6 ..... $2.95

Okla-Group 3, northern, shpt, bulk
- Gasoline, 89 oct reg 12-12.25
- Kerosine 10-10.5
- Heating oil, No. 2 ..... 9-9.375
- **Fuel oil, No. 6 ..... $1.85↓-2.05↓**

Chicago, bulk
- Gasoline, 91 oct reg 13-13.8
- Heating oil, No. 2 ..... 9.5-10.65
- Fuel oil, No. 6 high sulfur 8.1-8.2

Los Angeles, rack
- Gasoline, 88 oct reg 13.6
- Diesel fuel, PS 200 ..... 10-11.25
- Light fuel, PS 300 ..... $3.40-3.65
- Heavy fuel, PS 400 ..... $2.85-3.05

Natural Gasoline, Grade 26-70
- FOB Group 3 4
- FOB Breckenridge, Tex 3.5

LP-Gas
- **Propane, Oklahoma (Group 3) ..... 4↑-5***

Penna Lubes
- Bright stock, 25 p.t. 27
- 200 vis. neutral, 25 p.t. 25

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent, 95 v.i. 25.5-26.5
- Neutral, solvent, 200-210 vis. 21.25-22.25

Gulf Coast Lubes
- Bright stock, solvent, 95 v.i. 26.5
- Neutral, solvent, 200 vis. 23

**Effective Sept. 20.*

Eastern Hemisphere

Singapore (Pulau Bukom), cargoes
- Avgas, grade 100/130 ..... 18.625
- Gasoline, 79 oct research 10.5
- Kerosine 10.375
- Gas oil, 48 d. i. minimum 10.375

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, 36.0-36.9 ..... 3.07
- North Dakota, 36.0-36.9 ..... 3.07
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9 ..... 3.50
  - Gulf Coast, Upper & Lower, 26.0-26.9 ..... 3.07-3.22
  - West Texas, sweet, 36.0-36.9 ..... 3.07
  - West Texas, N. M., inter., 36.0-36.9 ..... 3.00
  - West Texas, N. M., sour, 32.0-32.9 ..... 2.86
  - East Texas, flat 3.25
  - Mirando, 28.0-28.9 ..... 3.31
- Illinois Basin, flat 3.15
- Pennsylvania Grade, Bradford dist. flat 4.65
- California Signal Hill, 21.0-21.9 ..... 2.93†
- North Louisiana-Arkansas, 36.0-36.9 ..... 3.20
- Wyoming sweet, 36.0-36.9 ..... 3.00
- Wyoming sour, 32.0-32.9 ..... 2.71

Canada (flat prices, at the well)
- Acheson-Stony Plain (Alta.) 2.68
- Leduc-Woodbend (Alta.) 2.74
- Redwater (Alta.) 2.63
- Daly (Man.) 2.46
- Smiley (Sask.) 2.40

Venezuela (Cargoes, FOB lifting port designated)
- Cumarebo, 48.0-48.9, Tucupido 3.75
- San Joaquin, 41.0-41.9, Puerto la Cruz 3.34
- Oficina, 35.0-35.9, Puerto la Cruz 3.05
- Tia Juana, Medium, 26.0-26.9, Amuay 2.55
- Bachaquero, flat, Amuay, Las Piedras 2.23
- Tarra, 38.0-38.9, San Lorenzo 3.08
- Lagunillas Heavy, flat, Amuay, Cardon 2.38

†Differential per deg. of grav. varies.

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabia, 34.0-34.9, Ras Tanura 2.08
- Safaniya, 27.0-27.9, Ras Tanura 1.79
- Iran, 34.0-34.9, Bandar Mashur 2.04
- Iran, 34.0-34.9, Abadan 1.99
- Iraq, 35.0-35.9, Fao 1.98
- Kuwait, 31.0-31.9, Mina-al-Ahmadi 1.85
- Qatar, 41.0-41.9, Umm Said 2.23

Middle East, Eastern Mediterranean
- Arabian, 36.0-36.9, Sidon 2.59
- **Iraq, 36.0-36.9, Tripoli, Banias ..... 2.59↓**

Far East, Cargoes, FOB Lutong, Sarawak
- Seria Light, 37-38 ..... 2.75

KEY TANKER RATES

(Last paid, per long ton, single voyage)

- U.S. Gulf-New York, clean ..... (USMC —35%) $1.85
- U.S. Gulf-New York, dirty ..... (USMC —35%) $1.85
- NWI-USNH, dirty ..... (USMC 55%) $1.22
- NWI-UK/Cont., dirty ..... (Scale —30%) 22/9*
- **Pers. Gulf-UK/Cont., dirty .. (Scale —50%) 30/2*↑**
- Persian Gulf-USNH, dirty ..... (USMC —50%) $6.35

**Sterling*

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DEPT/Service & Equipment Companies

ROBERT B. ALLEN is the new vice-president of McNamar Boiler & Tank Co., Tulsa manufacturer of equipment used in the production, storage, and transportation of petroleum products. He has been associated with Gas Equipment Co., Dallas, since 1955.

R. B. Allen

A. W. Rose

ANDREW W. ROSE has been elected vice-president and assistant to the president of the Byron Jackson division in Los Angeles, of Borg-Warner Corp. He is also a vice-president of Borg-Warner. Rose has been vice-president and general manager of the Petro-Mechanics Research division, the Borg-Warner laboratory at North Hollywood, Calif., which is developing the sonic oil well drill.

WILLIAM A. SCHUBERT is the new engineer-in-charge of rotary compressor sales for Allis-Chalmers Mfg. Co., Milwaukee, Wis. With the company since 1937, Schubert has been application engineer in the compressor department in recent years.

E. R. KOBERG, New Orleans district manager of Byron Jackson Tools, Inc., has been transferred to Ft. Worth as assistant manager of the export department. **R. E. Wood** will manage the company's new Four Corners office-warehouse at Farmington, N. M. A former salesman from Oklahoma City, **W. F. Roberts,** is the new district manager at Tulsa.

JOHN MAKARETZ has joined the staff of Badger Mfg. Co. as structural engineering consultant in Cambridge, Mass. The company engineers and constructs plants and process units for the chemical, petrochemical, and petroleum industries.

LAWRENCE W. CUNNINGHAM will manage sales in the southern region for Kelite Corp., in Beaumont, Tex. The company manufactures industrial chemicals and steam cleaning equipment. Cunningham joined Kelite in September, 1956 as Dallas district sales manager.

MAJOR ENGINEERING CO., has elected these directors: **N. D. Helland,** executive director of Oklahoma Blue Cross and Blue Shield; **Ralph W. Hill,** Major Engineering; **C. H. Keplinger,** partner in Keplinger & Wanenmacher; **Henry A. Sherman,** vice-president of Schermerhorn Oil Corp.; and **Paul R. Schultz,** president of Blackwell Oil & Gas Co. At a recent meeting, the company directors elected these officers: **Ralph W. Hill,** president; **C. H. Keplinger,** vice-president; and **N. D. Helland,** secretary-treasurer. The Tulsa company, incorporated in August, 1957, is engaged in the design, manufacture and sales of meter-type lease automatic custody transfer units.

EDWARD A. BERTRAM is the new vice-president of Yuba Consolidated Industries, Inc., and assistant general manager of its Adsco division, Buffalo, N. Y. Prior to his present appointment, he was manager for five years of the European Heat Exchanger division of Lummus Co. Yuba's Adsco division manufactures heat exchangers, expansion joints, and steel fabricated products for the chemical and refining industries.

HARRY T. HAUGH will head a new sales office in Chicago for Continental-Emsco Co. He was formerly a sales representative in Salem, Ill., for the company.

T. A. HALLER will head the newly established research and development center for J. I. Case Co., Racine, Wis. Succeeding him as director of engineering is **P. H. Spennetta,** who formerly was chief of research and testing for Caterpillar Tractor Co.

JAMES L. KEPPLE is the newly appointed director of sales for Rolo Mfg. Co., Houston designer, manufacturer and distributor of oil and gas well metering equipment. He will continue to serve as secretary-treasurer. **George Bradley** and **A. W. Swenson** are new additions to the sales and service staff. Bradley will represent Rolo in the Lafayette (La.) area; Swenson in North Texas and the Panhandle areas of Texas and Oklahoma. L. A. Christopher Co., Denver, and Ace Specialty Co., Abilene, Tex., also are new Rolo representatives.

L. Maltbie

P. Haught

LLOYD MALTBIE and **PETER HAUGHT** have been appointed managers of the Hobbs (N. M.) and Amarillo (Tex.) districts, respectively, of Christensen Diamond Products Co. Maltbie, formerly a field engineer in Great Bend, Kan., will be in charge of all sales promotion in southern New Mexico and West Texas. Haught, formerly a field engineer in Amarillo, will be in charge of this newly formed district, with sub offices in Liberal, Kan., and Pampa, Tex.

J. Norton

C. T. Jones

JACK NORTON will manage export sales, and **C. T. JONES,** will be assistant sales manager for Oil Center Tool Co., in Houston. Norton is being replaced as manager of the North Texas-Oklahoma district in Oklahoma City by **A. M. Taylor. A. C. West, Jr.,** succeeds Jones as manager of the West Texas-New Mexico district, in Midland, Tex. **Jim Humphries** is transferring from Houston to Dallas in charge of city sales in the North Texas area. Other new assignments are **B. C. Johnson,** serviceman, Houston; **W. E. Chiasson,** sales representative, Houma, La.; **LeRoy Jensen,** sales representative, Laurel, Miss.; **Jim Simmons,** sales representative, Shreveport, La.

THOMAS P. PIKE, has been elected a director of Republic Supply Co. of California, in Los Angeles. He was formerly assistant secretary of defense and later special assistant to President Eisenhower. He headed Pike Drilling Co. until 1953, when he was called to Washington.

ARVID NIHLEN has been appointed engineer of manufacture for Griscom-Russell Co., Massillon (Ohio) manufacturer of heat exchangers. He formerly was a director of research for a manufacturer of heat exchangers.

CARL P. JOYNER will manage the West Texas district for Cardwell Mfg. Co., with headquarters in Odessa, Tex. He was formerly a sales representative specializing in oil field transportation equipment for White Motor Co., in Houston and Dallas.

WILLIAM B. ALEXANDER will manage the newly formed industrial contracts division for Avondale Marine Ways, Inc., New Orleans. He was formerly a member of the engineering department at the firm's main yard.

J. W. JOHNSON becomes assistant sales manager for Jones & Laughlin Supply division's North Texas district, in Wichita Falls, Tex. He was formerly salesman at the Billings (Mont.) office.

SHELBY UNDERWOOD is to be the new sales engineer for the Farmington (N. M.) district of Welex Jet Services, Inc. He has been in oil well service work for 12 years, serving as rigman and shooter before becoming a salesman.

WESTERN CO., well servicing firm in Midland, Tex., has consolidated its operations and sales departments. As a result of the consolidation, the Oklahoma (Oklahoma City) and Midland divisions have been formed. **C. E. Woolridge** transfers from Midland to Oklahoma City as division manager of sales and operations. **W. W. Wilson** is division sales manager, and **Harold Parsons** is division operations manager, both in Oklahoma City. **Charles Simmons,** former regional manager of operations in Midland, is sales manager, and **Don Wolters** operations manager, both in the Midland division.

THE INSTRUMENT SOCIETY OF AMERICA has elected its top 1957-58 officers at the organization's 12th annual conference and exhibit in Cleveland. New officers are **Robert J. Jeffries,** assistant to the president, Daystrom, Inc., president; **Henry C. Frost,** assistant chief engineer, Corn Products Refining Co., president-elect-secretary; **Dr. Ralph H. Tripp,** head of the instrument department, Grummann Engineering Corp., vice-president of the industries department; **Carl W. Gram, Jr.,** vice-president of sales, Mason-Neilan division, Worthington Corp., district vice-president; **John F. Draffen,** research group leader, Monsanto Chemical Co., district vice-president of the southwest region; and **Adelbert Carpenter,** divisional manager, Fischer & Porter Co., West Coast district vice-president. Two district vice-presidents, **John T. Elder,** in charge of the southeastern states, and **Gordon D. Carnegie,** in charge of the midwest, have been reelected.

J. T. Liner

R. C. Yates

J. T. LINER and **R. C. YATES** are newly assigned assistant managers of the eastern division, in Lafayette, La., and northern division, in Oklahoma City, respectively, for Weatherford Oil Tool Co. Liner, formerly district manager in Hobbs, N. M., succeeds Yates in Lafayette. Two former sales and service engineers, **C. W. Haston** and **Lee Mooty,** are now district managers in the eastern division, in Houma, La., and western division, in Wichita Falls, Tex., respectively. Six transfers to new locations include **Gene Smith,** district manager, from Wichita Falls to Hobbs to succeed Liner; **Gene Posey,** sales and service engineer, from Abilene, Tex., to Wichita Falls; **Byron Jay,** sales and service engineer, from Beaumont to Corpus Christi; **H. J. James,** district manager, from San Antonio to Beaumont; **Willie Bourque,** from Harvey, La., to Lafayette; **Bill delaHoussaye,** from Laurel, Miss., to Harvey. **Kenneth Wind** and **Sonny McCurry** have joined the company as sales and service engineers in the Houston area. **Bill Williams** is the new co-pilot for Weatherford.

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Some Dry Holes Are Successful

OIL MEN USUALLY DON'T TALK MUCH about the dry holes they drill. But perhaps dry holes are worth talking about. Oil consumers have little idea of just how many are drilled every year, or of how the dry tests contribute to the nation's supply of petroleum.

A recent South Texas dry test presents something of a case history that is certainly worth telling. The test was a $700,000 failure in one sense. Like more than 20,000 others that will be drilled this year, it didn't find any oil.

But in another sense the failure was a success. The test was a deep one and one expected to encounter tough drilling. So some new drilling fluid ingredients went into the hole. And under extremely high temperatures and pressures, the new material stood up well.

THE TESTING OF NEW MATERIALS and equipment is made possible only by the money and effort that is plowed into research. The rugged and expensive equipment used to drill the South Texas test was only developed in recent years, the result of long and costly research. No one knows exactly just how much is spent each year on the development of new materials, techniques, and equipment. One guess is that service, supply, and equipment companies alone spend $100-million each. But it's only a guess.

It is out of such failures such as the one in South Texas that tomorrow's successes are born. And through such failures will come better equipment and techniques, to help find greater quantities of oil.

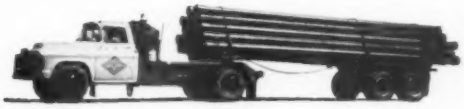
Oil Can Handle Its Own Emergencies

SOME GOVERNMENT OFFICIALS in Washington now want to create a centralized oil agency. The proponents of the idea say that the agency would gather together all the "expert brainpower" to handle such problems as the Suez crisis and the imports restriction plan. Too, they say, such a centralized agency would give the oil industry a real voice in Washington.

Certainly the industry needs a "voice" in Washington—one that can be heard above the clatter of the frequent attacks on oil that come from Washington. But oil does not need a government-controlled voice. The industry's success during the past 98 years of fueling the nation in war and peace is sufficient proof that it can gather its own expert brainpower to handle emergencies.

Congrats and $25 to Joe W. Lockhart, Colorado-Wyoming Gas Co., 421 Continental Oil Bldg., Denver, Colorado, for this quip.

Authorities have estimated that oil men must discover over 70 billion barrels of new oil in the next 20 years. This will call for a lot of Lone Star API pipe . . . and Lone Star is expanding its huge, ultra modern plant with a new open hearth furnace and a new stretch-reducing mill. Joe Roughneck, heart of the oil industry, can depend on Lone Star.



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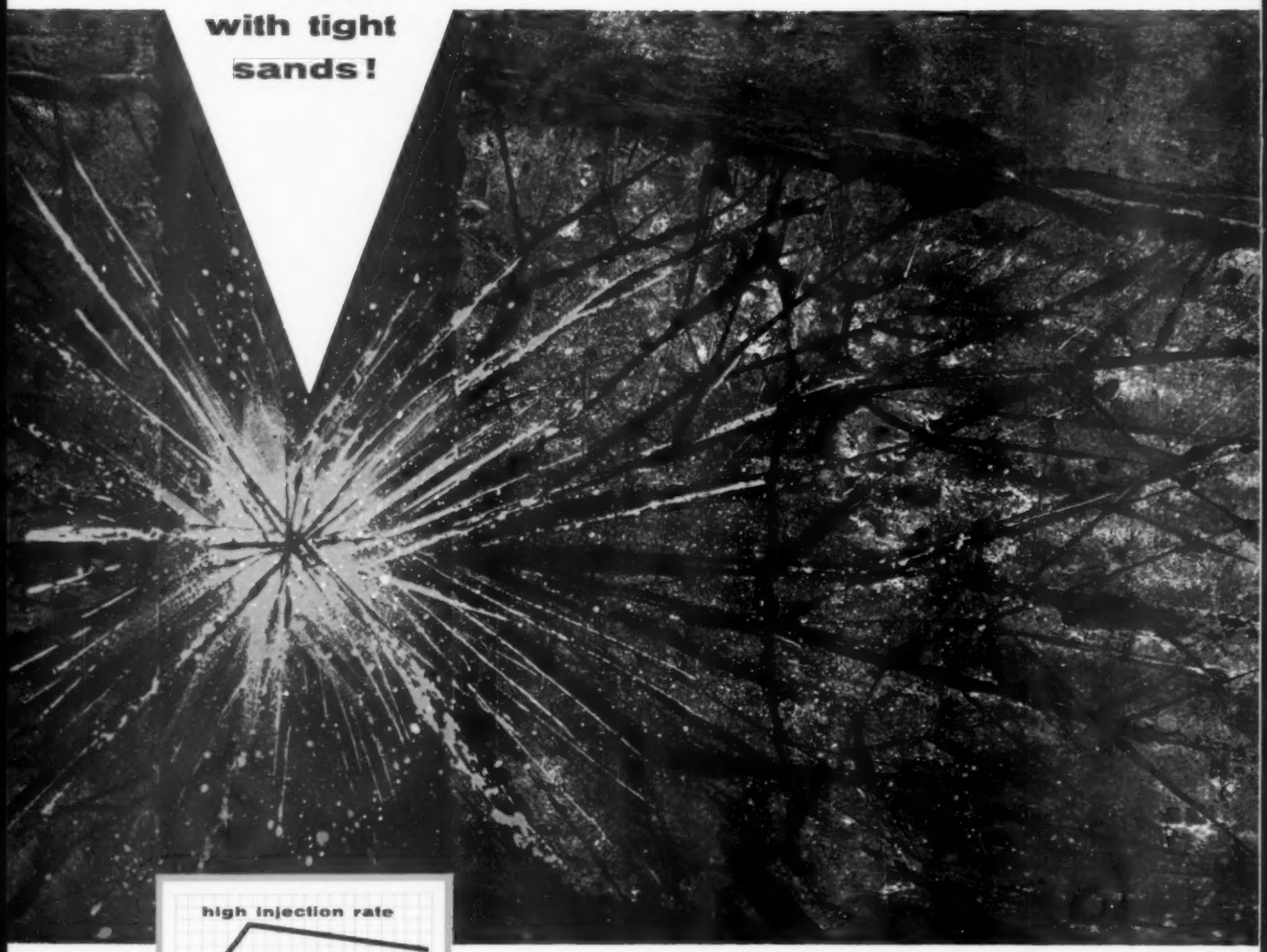

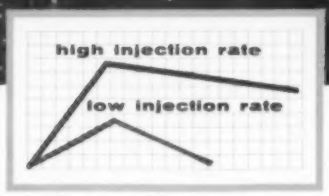

High injection rates have shown greater production and slower decline.

In most things, gentleness is good and proper.

But not so with some oil and gas reservoirs. To make them *give*, often calls for a "get tough" policy.

Dowell knows how to get tough with tight sands, and has the equipment needed to do it. Exclusive with Dowell is the new high-injection-rate "Frac Team": 1) the mighty Allison Pumper with power to spare, 2) the Remote Panel for safer operation, and 3) the Dowell Blender for precise control of sand and fluid mixing.

More and more, operators are finding that the harder you hit some formations with frac fluid, the greater the production is increased. Two to ten barrel-per-minute rates often provide little more than temporary stimulation. On the other hand, thirty to fifty bpm injection rates into the same formation often establish high and lasting production potentials. Also, with high injection rates, there is less danger of sand screen-outs.

Got a tight sand problem? Dowell will get after it with the experience and equipment they pioneered in high-injection-rate fracturing. Dowell Incorporated, Tulsa 1, Oklahoma.

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